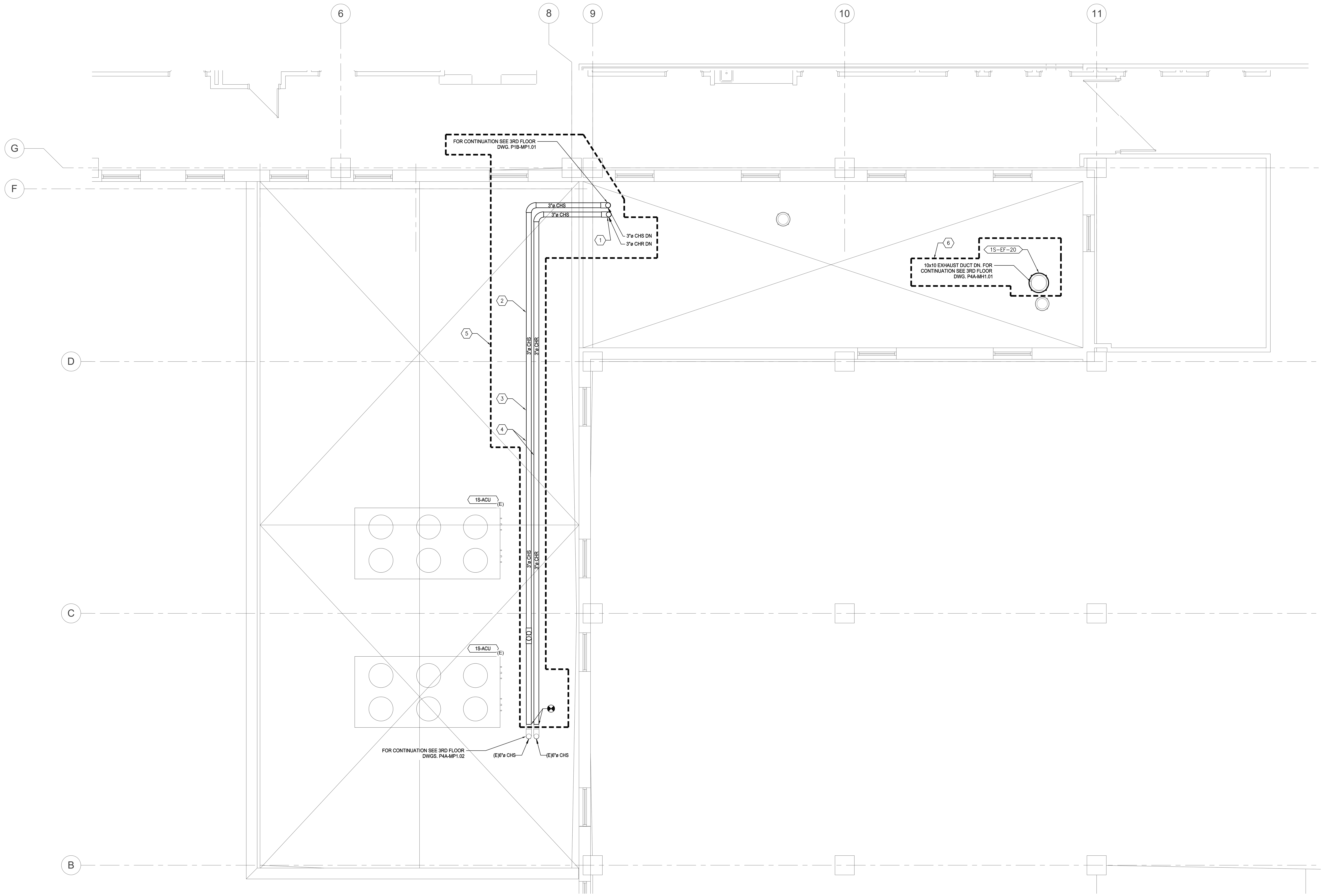


1 PHASE 1B - 4TH FLOOR ROOF MECHANICAL PLAN - NEW WORK

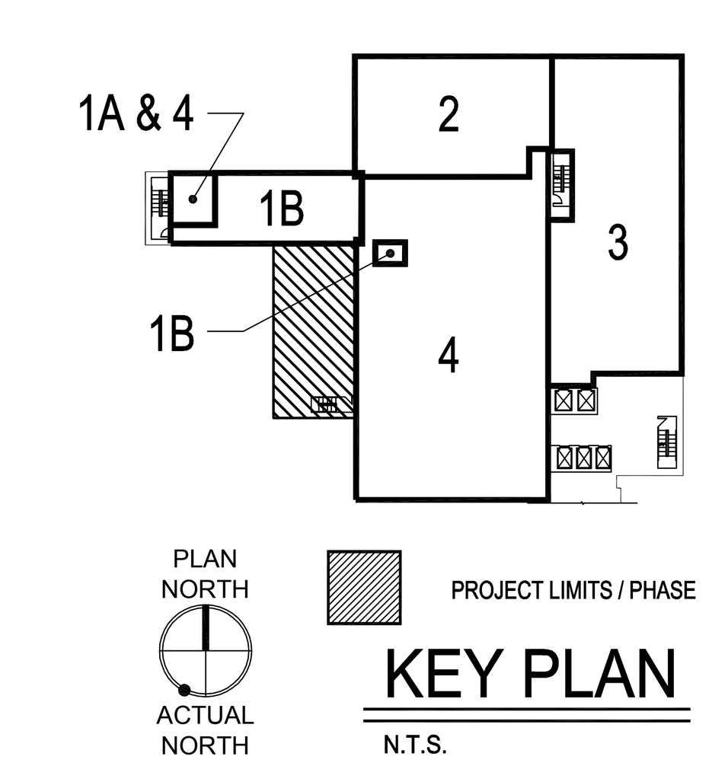
1/4" = 1'-0"

GENERAL HVAC NOTES:

1. COORDINATE ARCHITECTURAL ICRA BARRIERS/RATED WALLS WITH ALL TRADES. RELOCATE/CAREFULLY MOUNT NEW DUCTWORK AND DEVICES REQUIRING MAINTENANCE/INSPECTION WHICH FALL ABOVE WHERE NEW WORK CONSTRUCTION BARRIERS/ICRA WALLS ARE AS REQUIRED. NEW WORK REQUIRED OUTSIDE OF THE ACTIVE PROJECT PHASE CONSTRUCTION/ ICRA BARRIERS (E.G. ABOVE ACTIVE EGRESS CORRIDOR CEILINGS, ETC.) SHALL BE COORDINATED WITH VAMC/COR AND IS RECOMMENDED TO OCCUR AFTER-HOURS WITH TEMPORARY ICRA ENCLOSURES CONSTRUCTED AND TAKEN DOWN DURING EACH WORK PERIOD TO MINIMIZE DUST/DIRT/DEBRIS IN THESE AREAS. WORK ZONES SHALL BE CLEANED THOROUGHLY FOLLOWING EACH SCHEDULED DEMOLITION EFFORT/WORK DAY. PATCH, SEAL AND FIRESTOP ALL WALL PENETRATIONS FOR PIPING, DUCTWORK, CONTROLS, TUBING, ETC. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND LOCATIONS OF CONSTRUCTION BARRIERS/ICRA WALLS FOR EACH PROJECT PHASE
2. PRIOR TO EVERY PHASE OF THE PROJECT CONSTRUCTION EFFORTS, PERFORM TESTING AND BALANCING TO DOCUMENT AND MAINTAIN AIRFLOWS OUTSIDE OF THE PROJECT AND ACTIVE PHASE AREAS. DOCUMENT ALL AIRFLOW AND SPACE PRESSURE/ROOM OFFSETS WITHIN THE PROJECT AREA PRIOR TO PROCEEDING TO THE NEXT PHASE.
3. ALL WORK WITHIN PROJECT AREAS MUST BE COORDINATED WITH OWNER FOR IMPACT TO ADJACENT SPACES. OFF HOUR WORK MUST BE INCLUDED AS REQUIRED TO MINIMIZE ADVERSE IMPACT FROM VIBRATION, NOISE, ODOR, ETC. TO ACTIVE/OCCUPIED ADJACENT AREAS. OFF-HOURS WORK REQUIRED WITHIN CORRIDORS AND REGIONS OF THE FLOOR OUTSIDE OF THE MAIN ACTIVE PHASE PROJECT AREA.
4. CONTROLS CONTRACTOR SHALL COORDINATE ALL LINE VOLTAGE POWER REQUIREMENTS FOR ALL BAS CONTROL PANELS AND SHALL COORDINATE ALL LOW VOLTAGE POWER AND WIRING FOR BAS CONTROL DEVICES, SPACE TEMPERATURE SENSORS, MULTI-TECHNOLOGY OCCUPANCY SENSORS, AIR TERMINAL UNITS (TUS), REHEAT COIL CONTROL VALVES, ETC. AS REQUIRED TO ACHIEVE SEQUENCES OF OPERATION AS INDICATED BY CONTROL DIAGRAMS. COORDINATE CONTROLS WORK WITH ALL TRADES.
5. CAREFULLY MOUNT ALL EQUIPMENT, VALVES, CONTROLLERS, ETC. REQUIRING MAINTENANCE/ACCESS/INSPECTION IN ACCESSIBLE LOCATIONS. PROVIDE CEILING ACCESS PANELS IN HARD CEILINGS OR LOCATE ITEMS ABOVE LAY-IN TILE CEILINGS/REMOVABLE TILES AS REQUIRED TO ENSURE ACCESS. REFER TO SPECIFICATIONS FOR ACCESS DOOR TYPES AND REQUIREMENTS.

⬡ SHEET KEYNOTES:

1. COORDINATE FINAL LOCATIONS OF ALL DUCTWORK AND PIPING ROOF PENETRATIONS WITH EXISTING CONDITIONS IN THIRD FLOOR CORRIDOR BELOW AND ON EXISTING THIRD FLOOR MER ROOF. REFER TO DETAILS AND SPECIFICATIONS FOR PENETRATIONS, ROOF CURBS, PIPE SLEEVES, INSULATION THROUGH PENETRATIONS, WATER-PROOFING, ROOF PATCHING/REPAIR, ETC. COORDINATE WORK WITH ALL TRADES.
2. REFER TO ROOF PIPING SUPPORT AND INSULATION DETAILS AND SPECIFICATIONS. MOUNT PIPING AT EXISTING ROOF LEVEL ON PRE-FABRICATED CURBS BELOW LINE OF ADJACENT FOURTH FLOOR WINDOWS. INSTALL PIPING WITH ADEQUATE CLEARANCE/SPACE BETWEEN PIPING AND EXTERIOR BUILDING WALLS TO ALLOW MAINTENANCE/PERSONNEL ACCESS TO EXISTING ROOFTOP EQUIPMENT/AIR COOLED CONDENSING UNITS, NEW LOCKER ROOM EXHAUST FAN 1S-EF-19, ETC.
3. CONTRACTOR SHALL CONFIRM SUPPLY AND RETURN PIPING AND CLEARLY LABEL EXISTING AND NEW PIPING ON ROOF, WITHIN MECHANICAL EQUIPMENT ROOMS, ABOVE FINISHED CEILINGS, ETC. IN ACCORDANCE WITH SPECIFICATIONS. CONFIRM SITE SUPPLY CHILLED WATER IS EXTENDED TO 1S-AHU-01 SUPPLY CHILLED WATER CONNECTION AND THAT SITE RETURN CHILLED WATER IS EXTENDED TO 1S-AHU-01 RETURN CHILLED WATER CONNECTION.
4. EXPOSED PIPING TO BE ELECTRIC HEAT TRACED.
5. ALL NEW WORK TO BE PERFORMED DURING PHASE 1B.
6. ALL NEW WORK TO BE PERFORMED DURING PHASE 4A



KEY PLAN
N.T.S.

100% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

ARCHITECT / ENGINEERS:

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Drawing Title	Project Title	Project Number
MECHANICAL 4TH FLOOR ROOF PLAN NEW WORK	**RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**	**581-13-101**
Approved: Medical Center Director	Location: HUNTINGTON, WV	Building Number: 1S
	Date: 01-15-2016 / Checked: MPP / Drawn: JLR	Drawing Number: **M4.01**

Office of Construction and Facilities Management
Department of Veterans Affairs

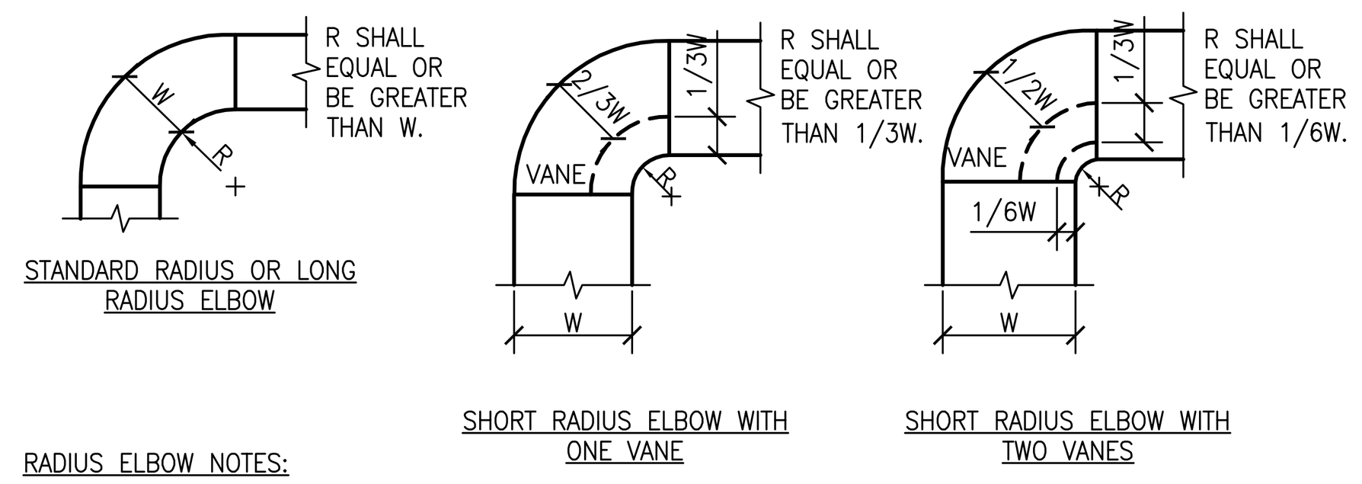
VA FORM 08-6231

P:\0499_DVA\1-0499-0025 Huntington WV Renovate Surgical Service and Operating Rooms\2_Drawings\1_Cad\1_Current Submittal Phase\6_MeM4.01 - Roof Plan.dwg 2-29-16 01:16:41 PM msmith

three inches = one foot; one and one half inches = one foot; one inch = one foot; three quarters inch = one foot; one half inch = one foot; three eighths inch = one foot; one quarter inch = one foot; one eighth inch = one foot

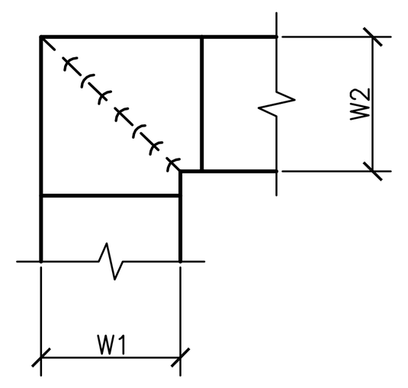
GENERAL SHEET NOTES:

1. SEE DWG. M0.01 AND M0.02 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. THIS DRAWING IS TO BE USED IN CONJUNCTION WITH ALL OTHER DRAWINGS IN THIS PACKAGE.



RADIUS ELBOW NOTES:

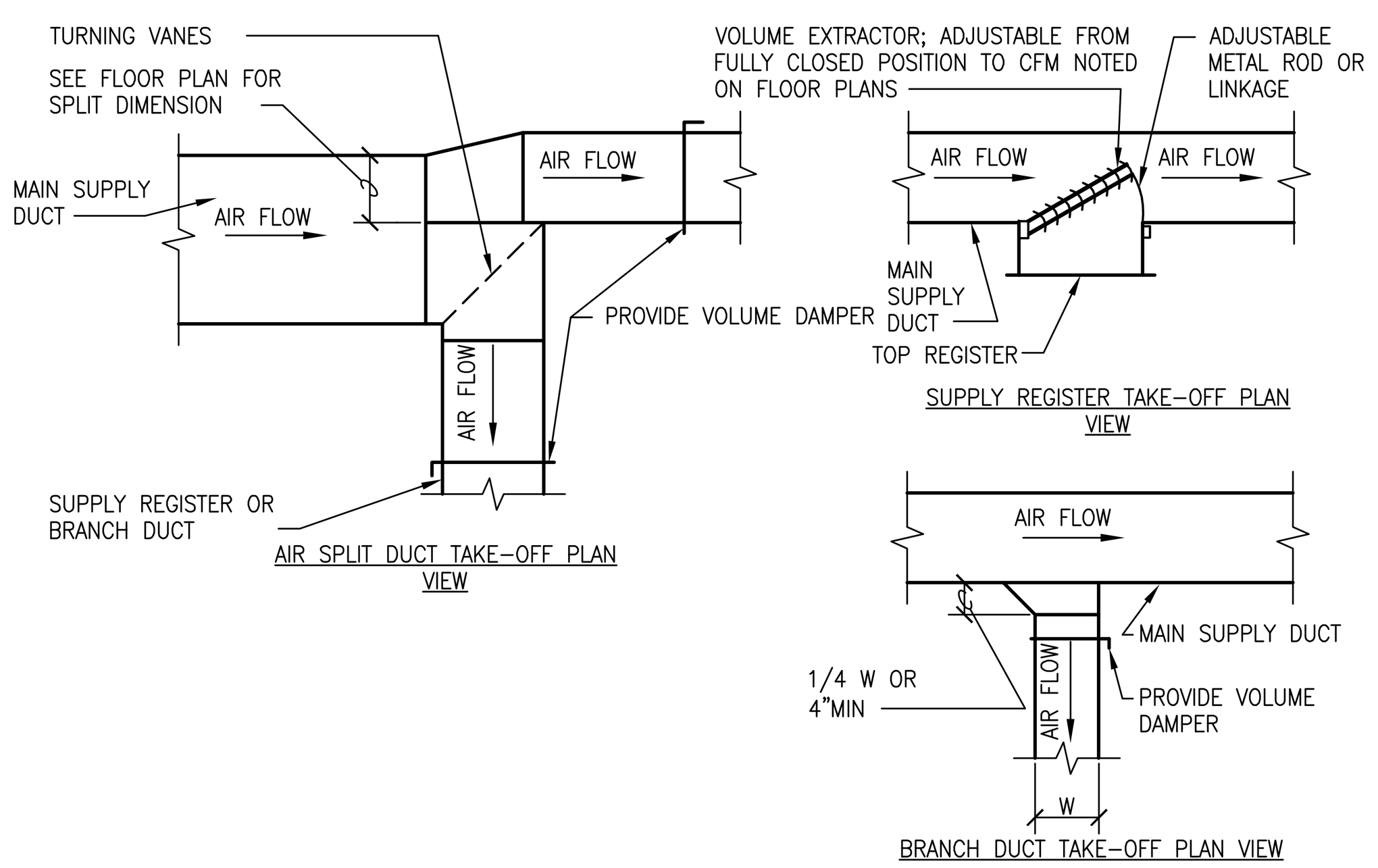
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.



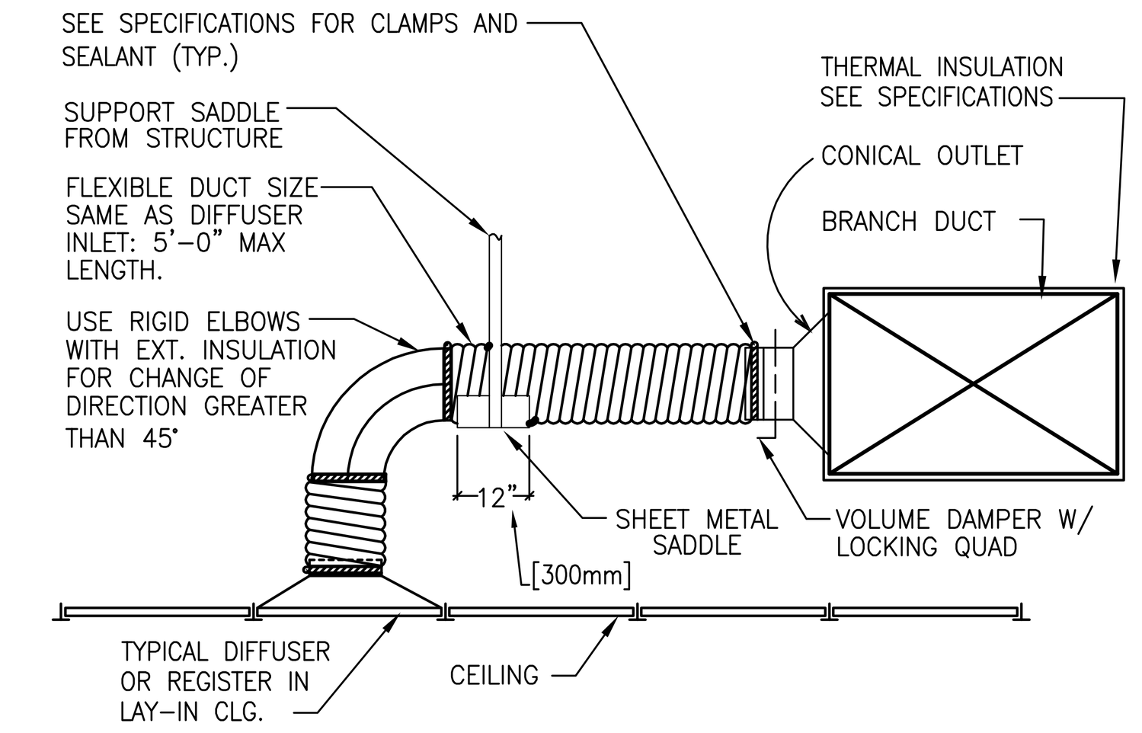
RECTANGULAR VANED ELBOW NOTES:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" [50mm] RADIUS, 1 1/2" [40mm] MAXIMUM SPACE BETWEEN VANES AND A 3/4" [20mm] TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" [500mm] VANES SHALL BE DOUBLE VANE TYPE.

1 DUCTWORK ELBOWS
NTS

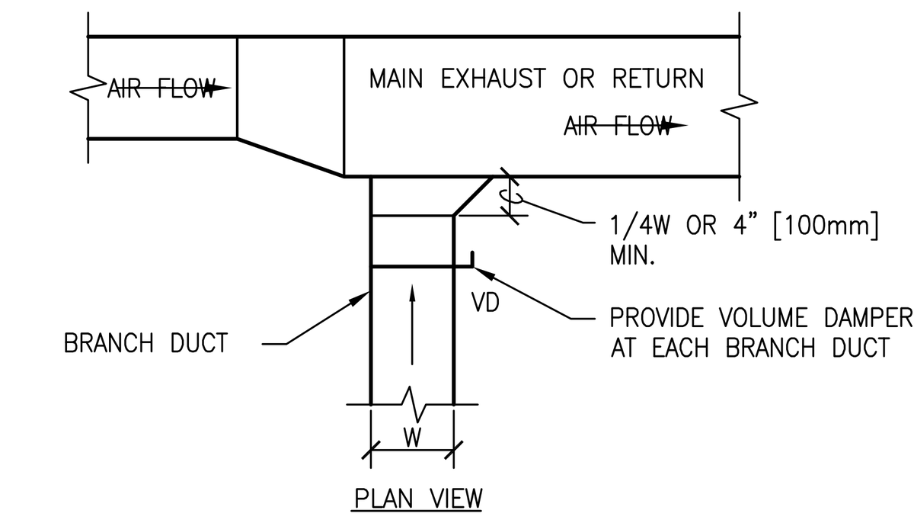


2 SUPPLY DUCTWORK TAKE-OFFS
NTS

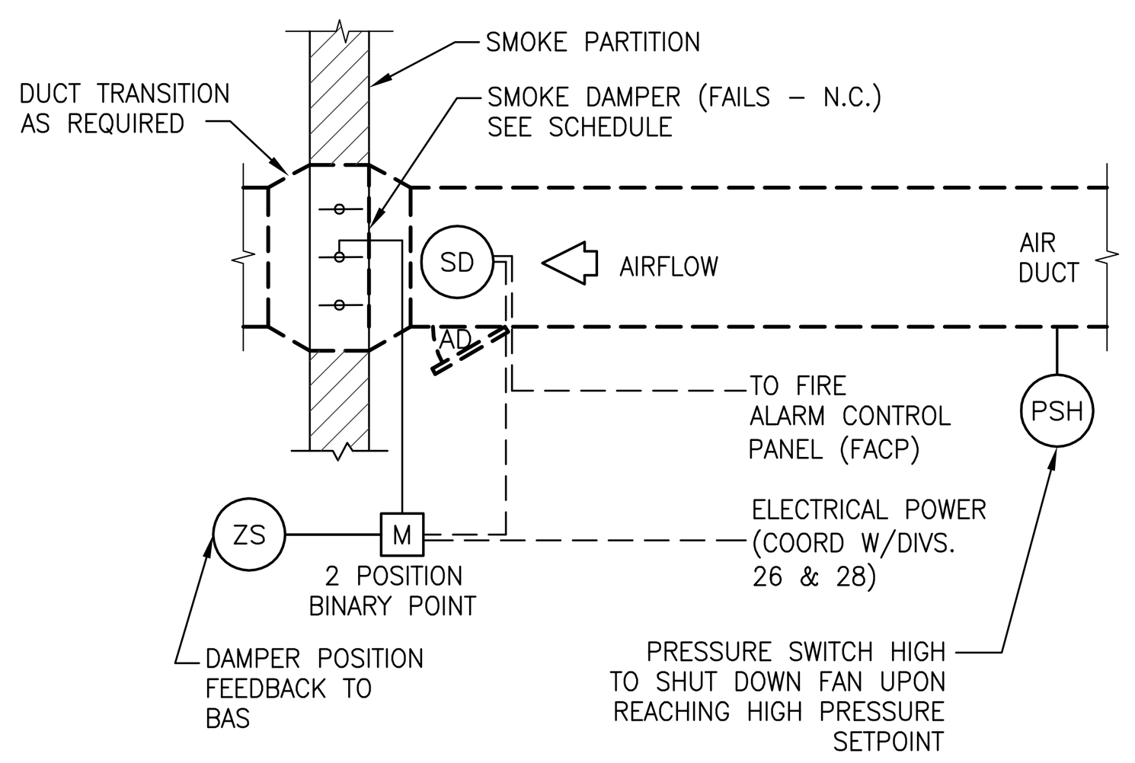


NOTE: REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUPPORT AND WHERE FLEXIBLE DUCTWORK IS ALLOWED. UNLESS OTHERWISE NOTED, LIMIT FLEXIBLE DUCTWORK TO WAITING AND RECEPTION AREA SUPPLY DUCTWORK. FLEXIBLE DUCTWORK IS NOT ALLOWED FOR EXHAUST SYSTEMS.

3 FLEXIBLE AIR DUCT CONNECTOR
NTS

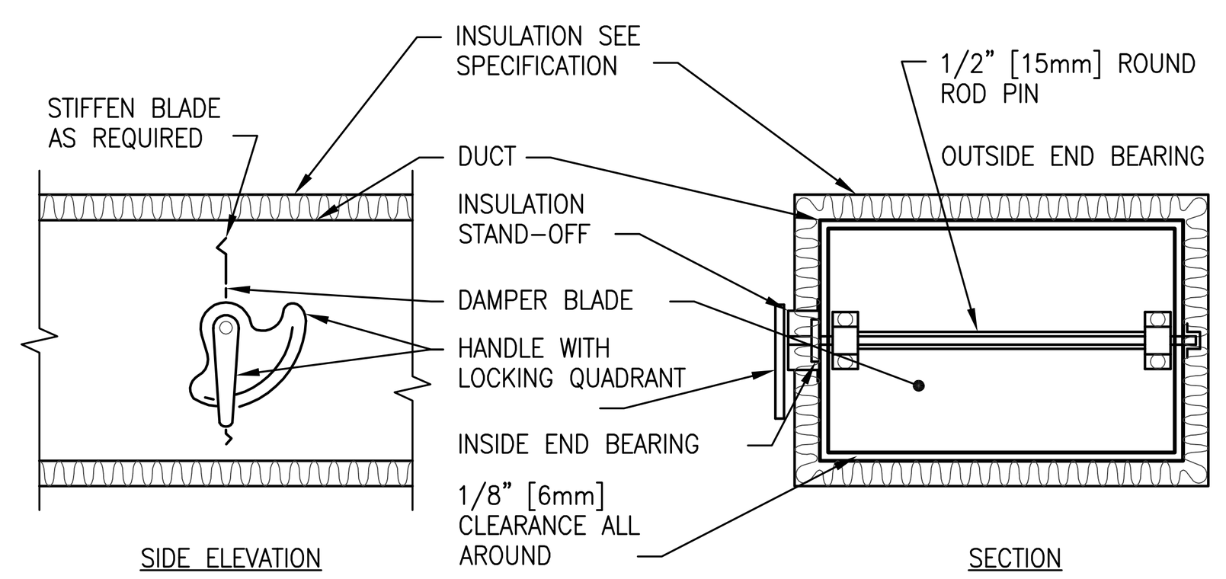


4 EXHAUST OR RETURN BRANCH DUCTWORK
NTS



NOTE:
UPON DETECTION OF SMOKE BY THE SMOKE DETECTOR, THE SMOKE DAMPER SHALL CLOSE & SEND AN ALARM TO THE BAS. BAS SHALL MONITOR DUCT PRESSURE SENSOR AND ALARM HIGH POSITIVE (SUPPLY) AND HIGH NEGATIVE (RETURN/EXHAUST) FOR ASSOCIATED DUCT SYSTEM.

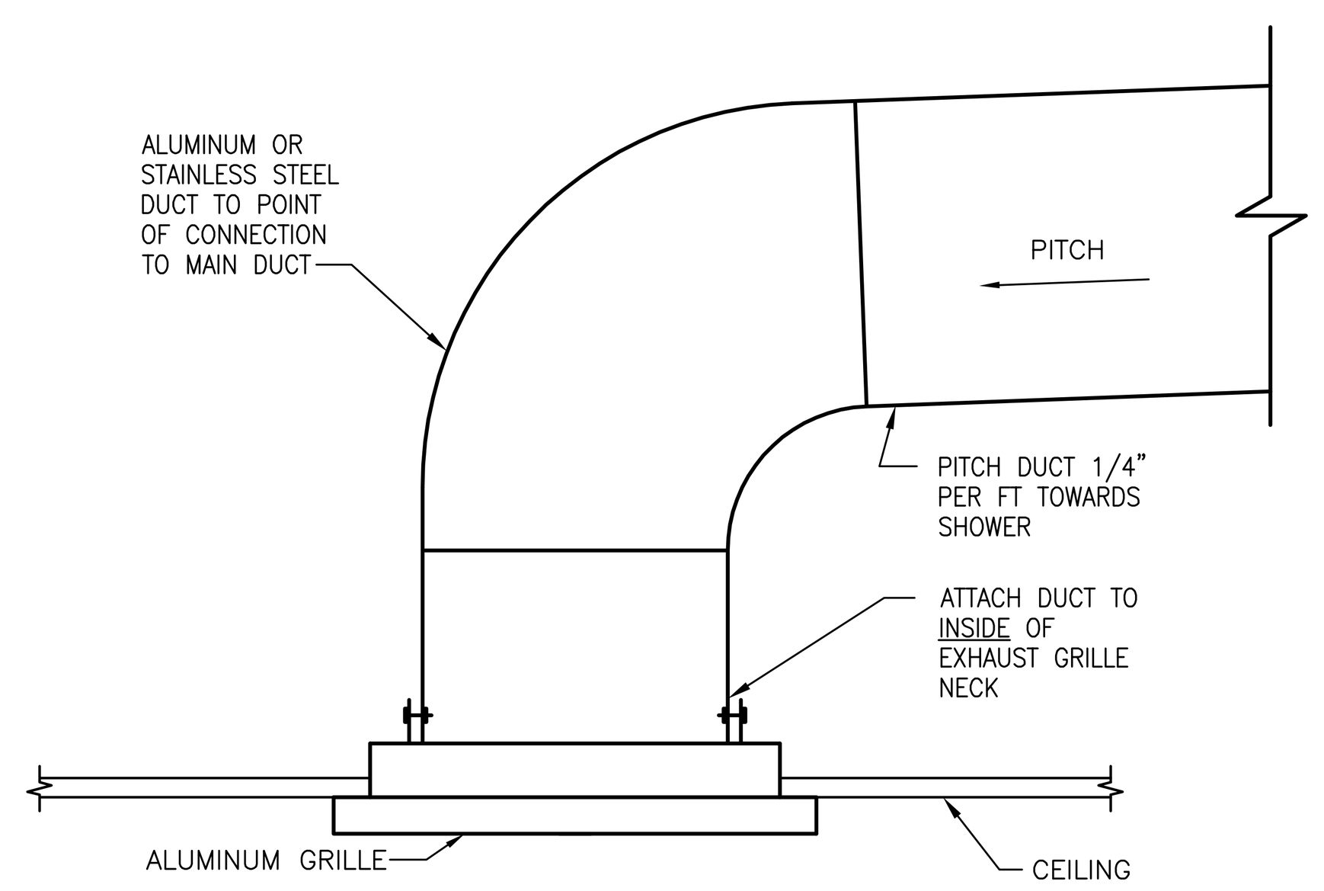
5 SMOKE DAMPER CONTROL DIAGRAM
NTS



NOTE:

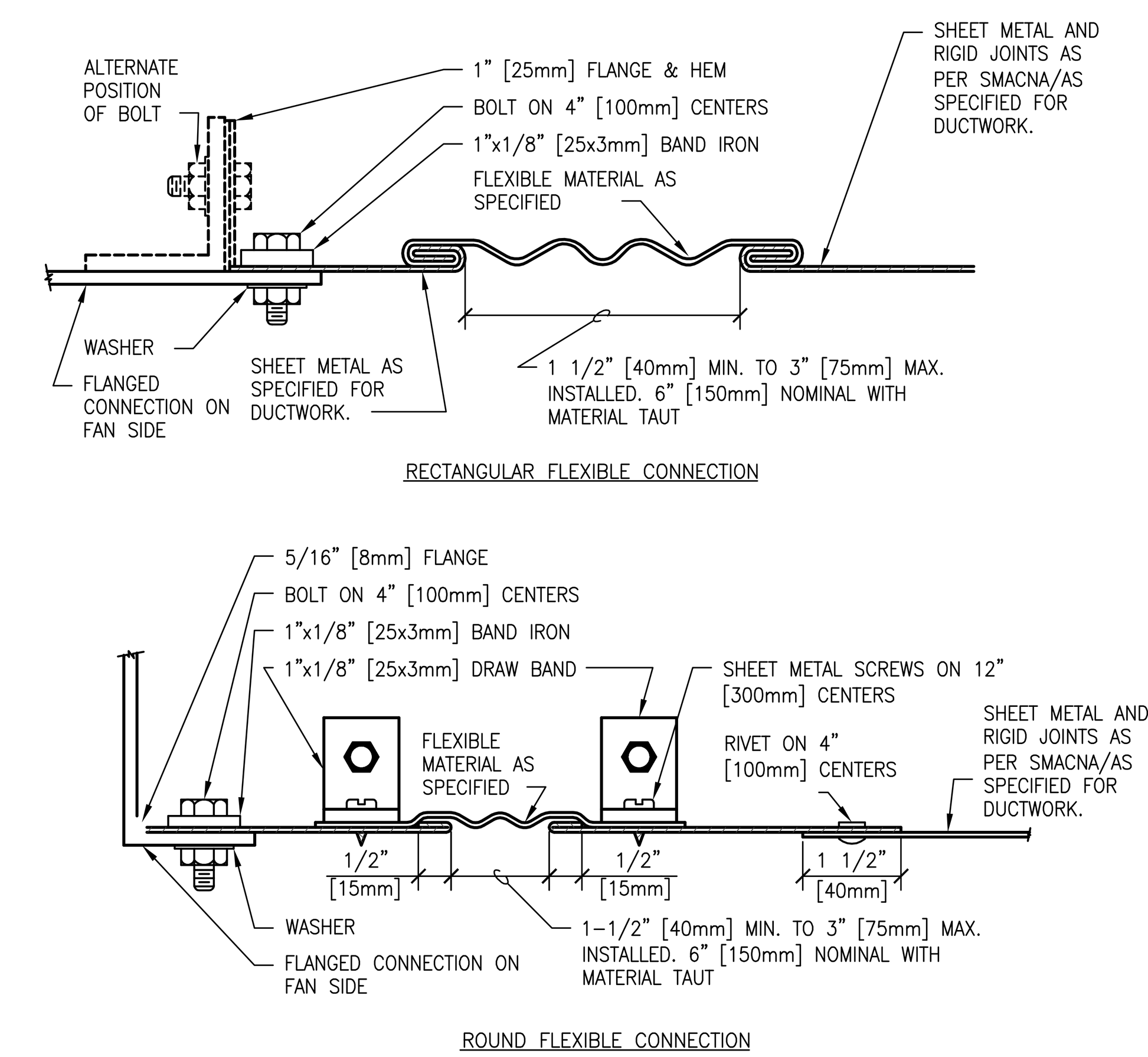
1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

6 VOLUME DAMPER DETAIL
NTS

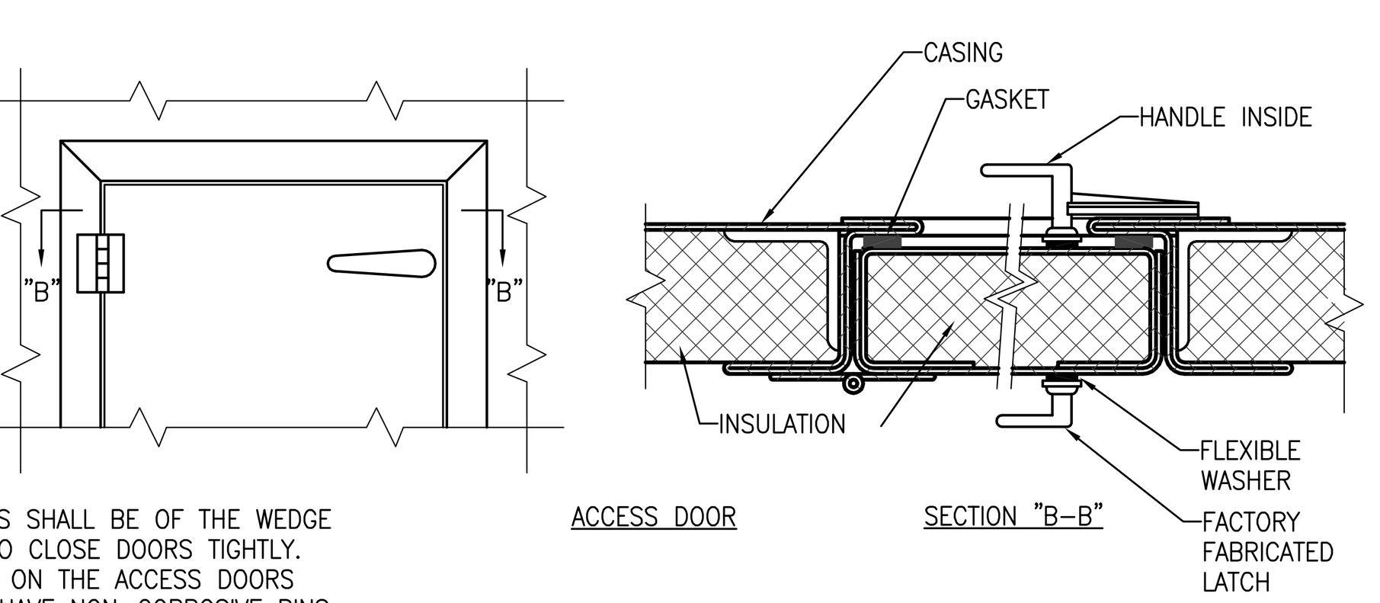


NOTE:
SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

7 SHOWER EXHAUST GRILLE
NTS

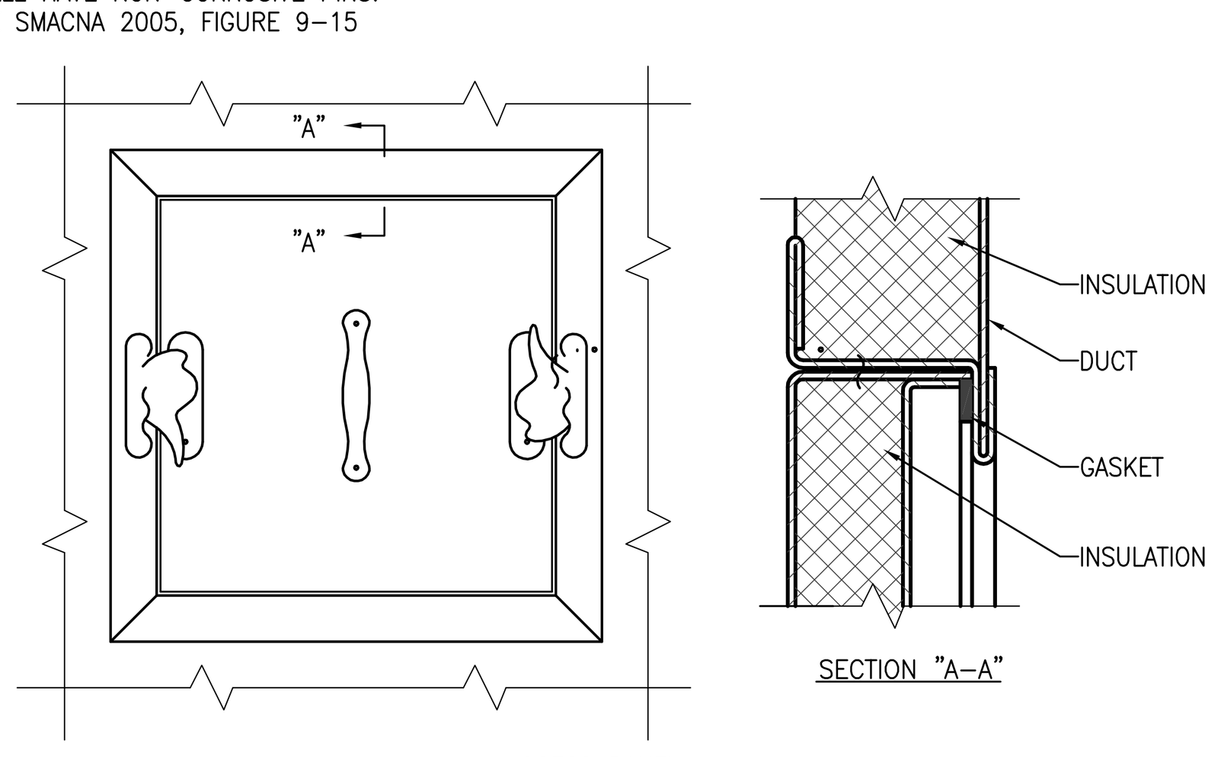


8 FLEXIBLE DUCT CONNECTIONS
NTS

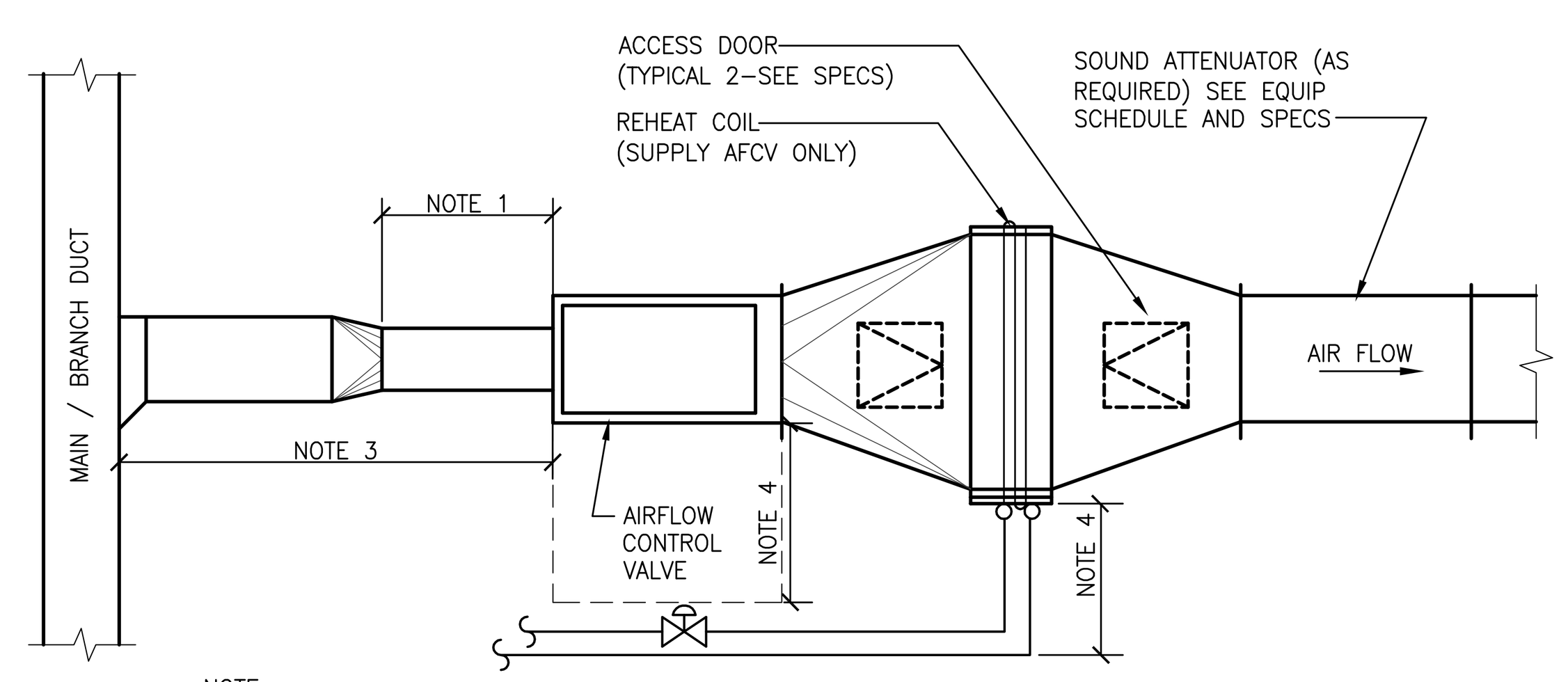


NOTES:

1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9-15



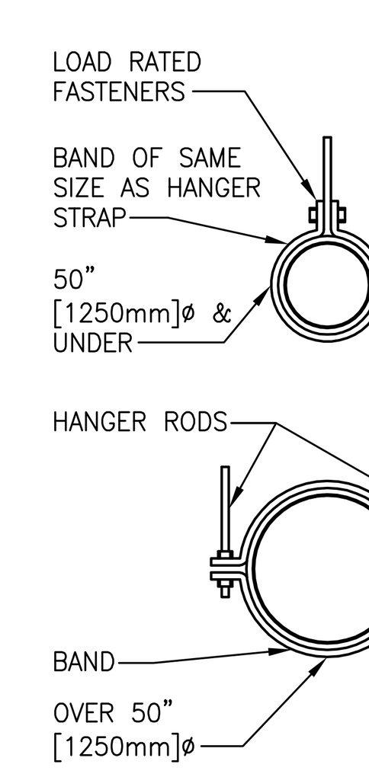
9 ACCESS PANEL AND DOOR DETAIL
NTS



NOTE:

1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET.
2. ALL SUPPLY DUCTWORK AND AFCV FOR SURGICAL SUITE SUPPLY SHALL BE STAINLESS STEEL. ALL DUCTWORK FOR RETURN, EXHAUST AND NON-SURGERY SUPPLY SHALL BE GALVANIZED STEEL.
3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET [3 M]. FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.1"/100' [0.6894Pa/m].
4. PROVIDE AND COORDINATE ACCESS FOR REHEAT COIL, REHEAT COIL CONTROL VALVE AND AIRFLOW CONTROL VALVE CONTROLS ENCLOSURE SERVICE. SEE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS FOR REQUIRED CLEARANCES. DO NOT BLOCK DUCT ACCESS DOORS OR EQUIPMENT WITH PIPING, CONDUIT, OTHER DUCTS, ETC. COORDINATE WITH ALL TRADES TO MAINTAIN ACCESS FOR MAINTENANCE.

10 AIRFLOW CONTROL VALVE (SAV-RAV-EAV) DETAIL
NTS



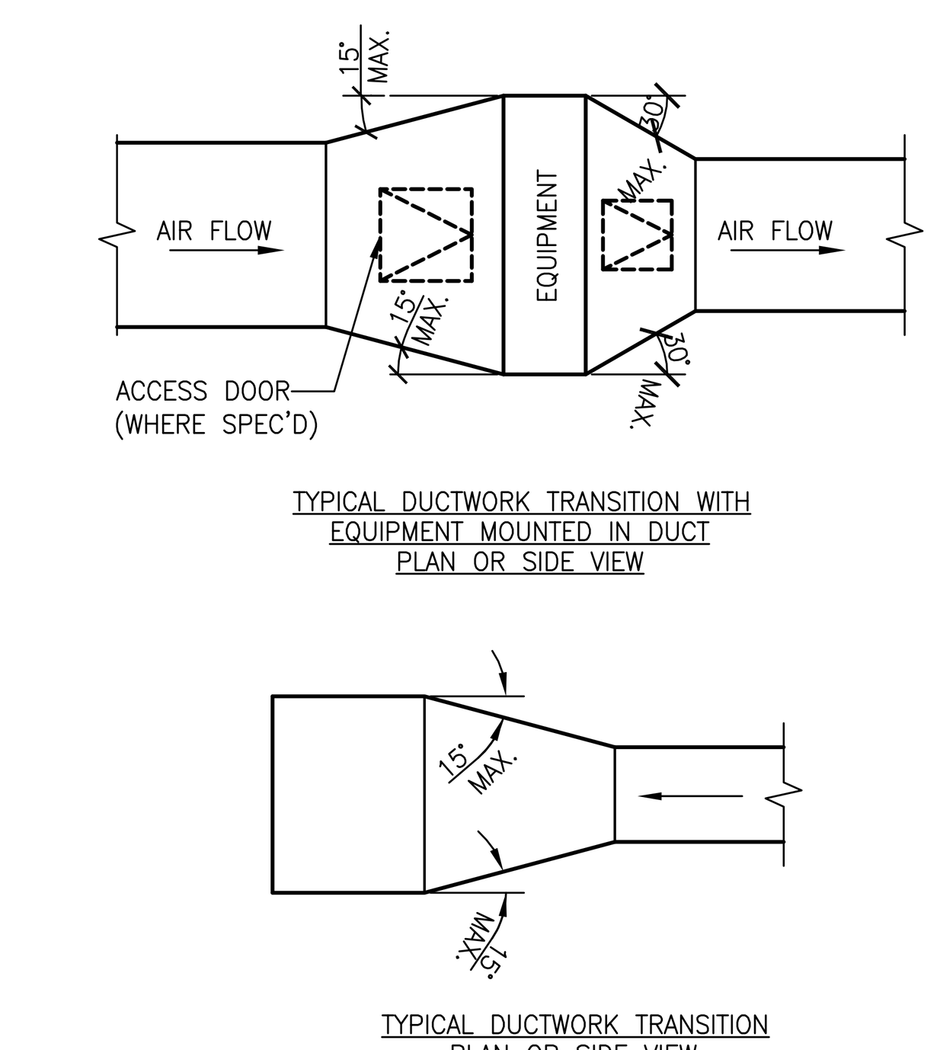
HANGER STRAPS OR RODS

MAX. DUCT ø IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10]ø. RODS	1320 [598]	144 [3600]
84 [2100]	TWO 1/2 [13]ø RODS	2500 [1133]	144 [3600]

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

SUPPORT ALL RECTANGULAR AND ROUND DUCTWORK IN ACCORDANCE WITH SPECIFICATION SECTION 23 31 00, MEETING THE REQUIREMENTS AND CRITERIA OF ALL REFERENCED SMACNA STANDARDS.

11 ROUND DUCT HANGERS
NTS



NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

12 DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)
NTS

100% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC PROFESSIONAL ENGINEER

THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

ARCHITECT / ENGINEERS:

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SDVOSB A Service Disabled Veteran Owned Small Business CVE

PF&A

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www.pfa-architect.com

Drawing Title: **MECHANICAL DETAILS**

Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: 581-13-101

Building Number: 1S

Drawing Number: M5.01

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

P:\0499_DVA\1-0499-0025 Huntington WV Renovate Surgical Service and Operating Rooms\2_Drawings\1_Cad\1_Current Submittal Phase\6_MeM5.01 - Details - Airside.dwg 2-29-16 01:16:37 PM msmith

GENERAL SHEET NOTES:

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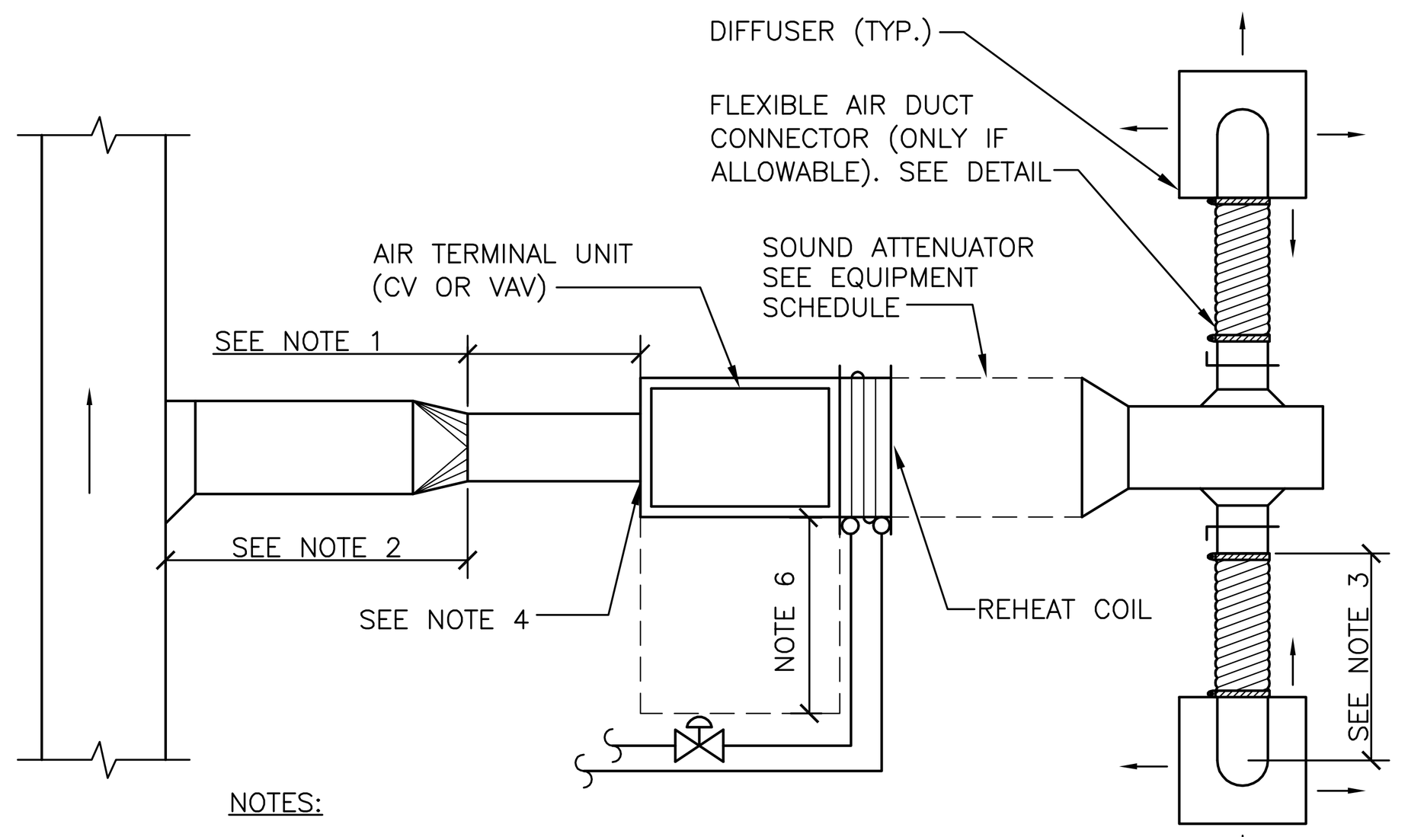
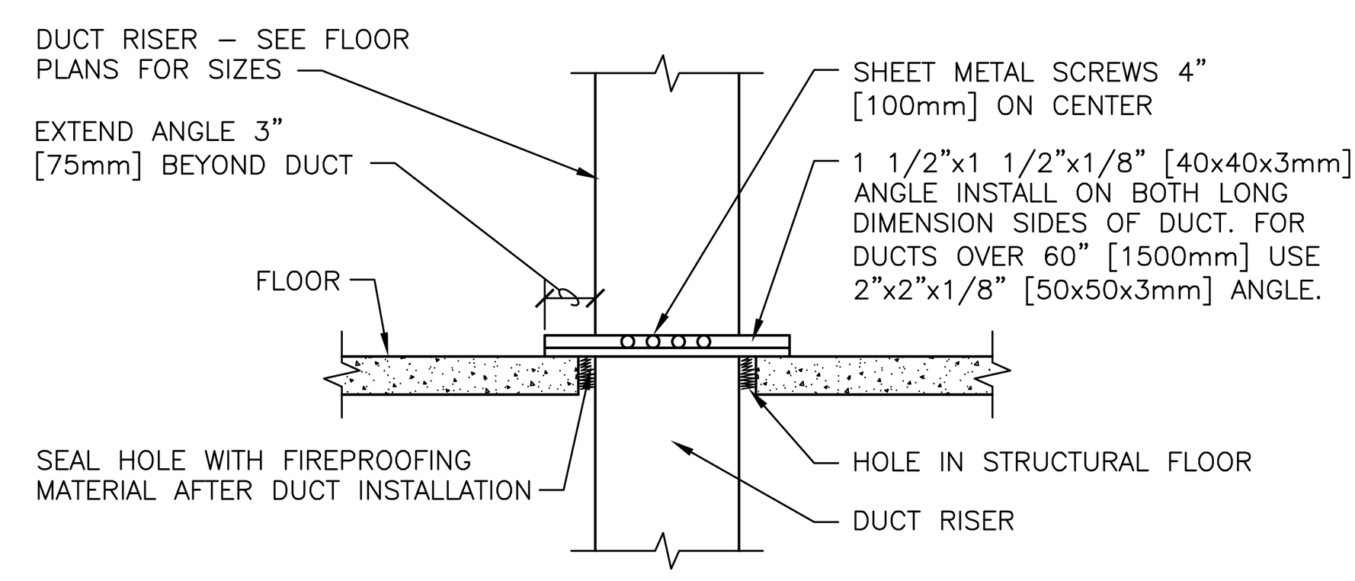


NOTES:

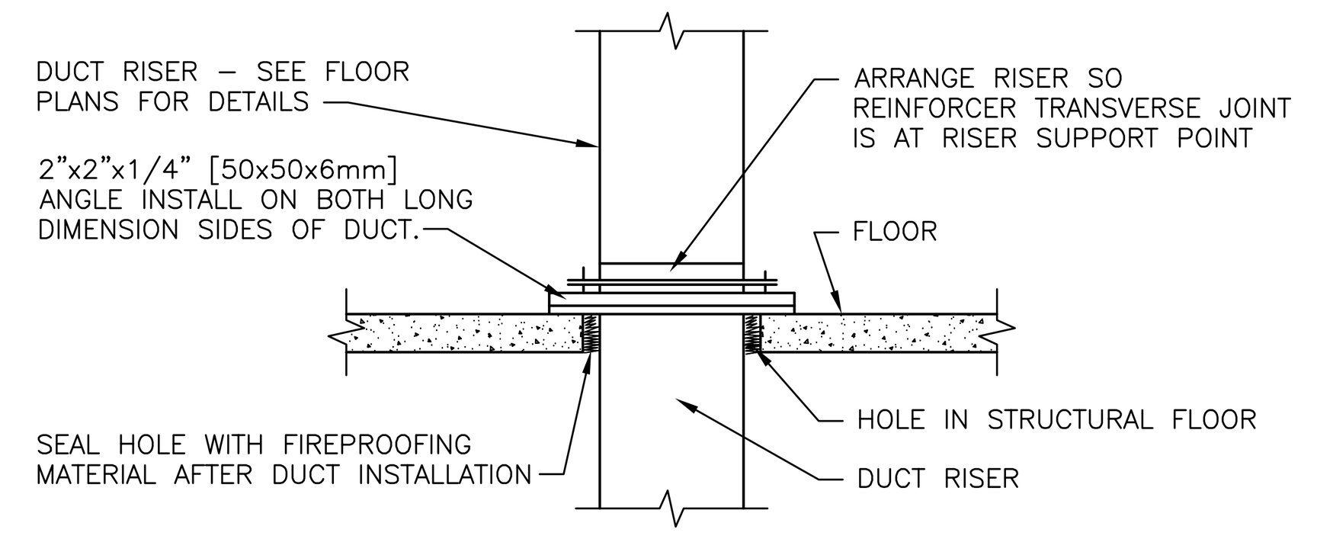
1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET
2. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET (3 METERS). FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100'.
3. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0". USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
4. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.
5. USE OF THE FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.
6. PROVIDE AND COORDINATE ACCESS FOR REHEAT COIL, REHEAT COIL CONTROL VALVE AND AIRFLOW CONTROL VALVE CONTROLS ENCLOSURE SERVICE. SEE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS FOR REQUIRED CLEARANCES. DO NOT BLOCK DUCT ACCESS DOORS OR EQUIPMENT WITH PIPING, CONDUIT, OTHER DUCTS, ETC. COORDINATE WITH ALL TRADES TO MAINTAIN ACCESS FOR MAINTENANCE.

1 DUCT CONNECTIONS - AIR TERMINAL UNITS

NTS



0.5 INCH WG [125Pa] TO 2 INCHES WG [500Pa] DUCT RISER SUPPORT

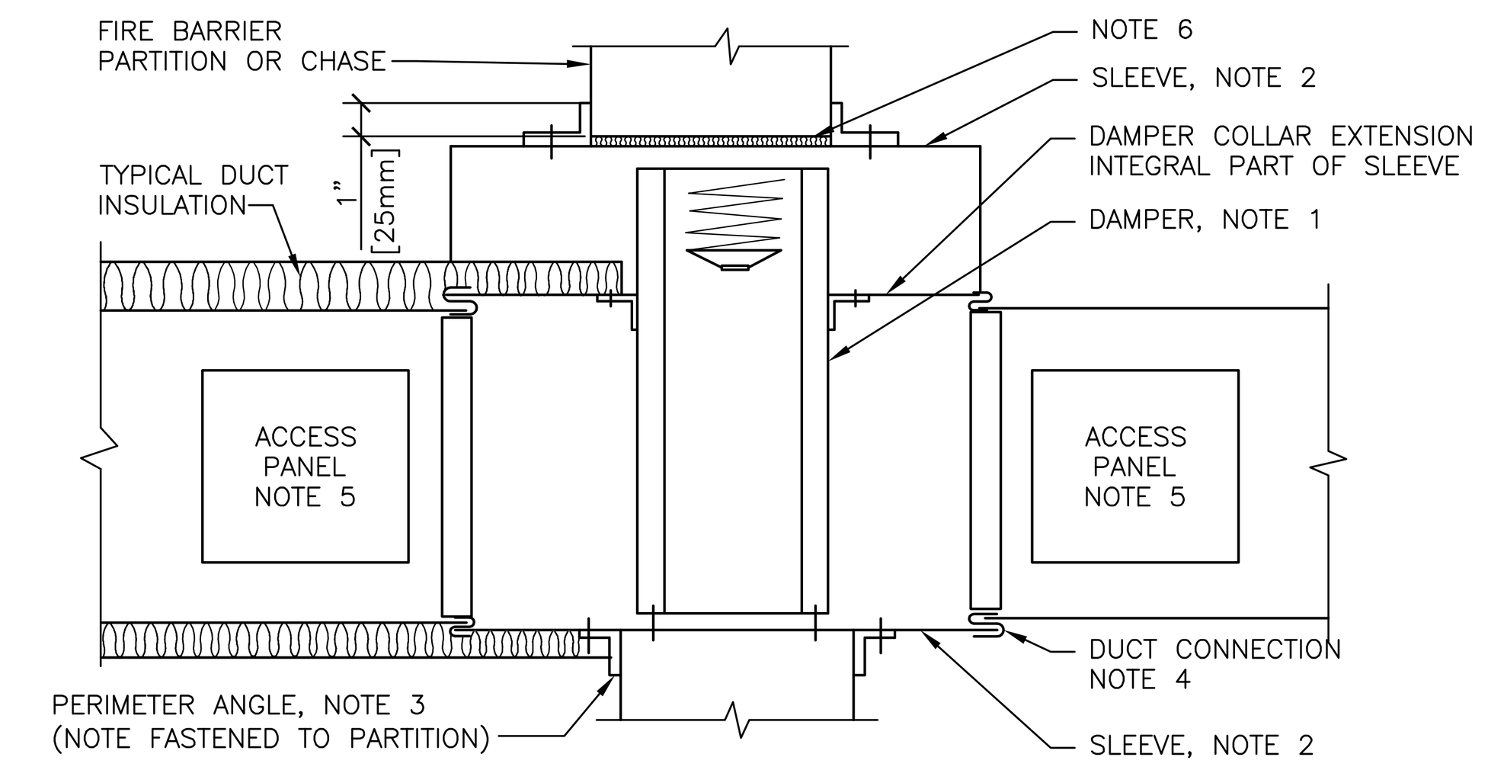


2 INCHES WG [500Pa] TO 4 INCHES WG [1000Pa] DUCT RISER SUPPORT

NOTE:
ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND FAN ROOM FLOORS SHALL BE PROVIDED WITH A 3" [75mm] HIGH CONCRETE CURB AROUND OPENING FOR DUCT TO PROVIDE SPILL CONTAINMENT. ENCLOSE DUCTWORK PENETRATING RATED ASSEMBLIES WITHIN RATED CHASES AND PROVIDE FIRE OR COMBINATION FIRE/SMOKE DAMPERS WHERE INDICATED ON PLANS.

2 DUCT RISER SUPPORTS

NTS

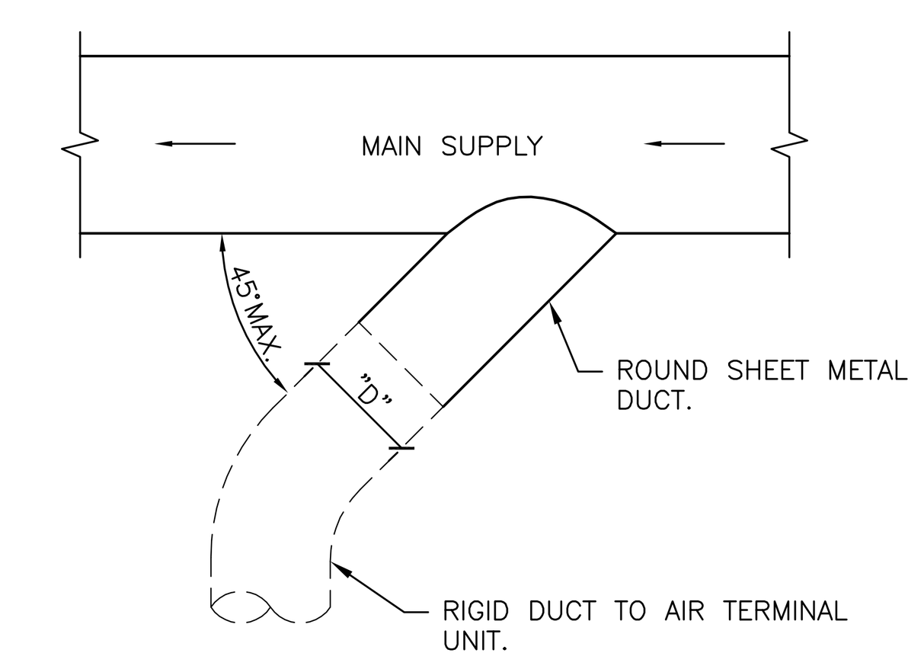


NOTES:

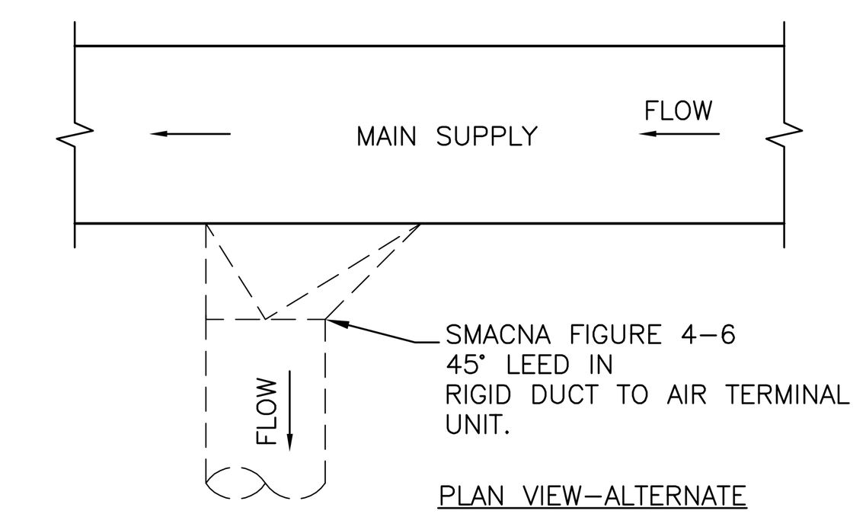
1. A VERTICAL DAMPER IS SHOWN. HORIZONTAL DAMPER INSTALLATION, IS SIMILAR. FOLLOW DAMPER MANUFACTURER'S INSTRUCTIONS, INCLUDING FASTENER OPTIONS AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN THE PARTITION OR FLOOR AND NOT OUTSIDE THE PENETRATION UNLESS UL-LISTED INSULATED SLEEVE IS PROVIDED WITH ASSEMBLY.
2. GALVANIZED SLEEVE: GAGE NOT LESS THAN CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.
3. PERIMETER ANGLES: GALVANIZED STEEL, NOT LESS THAN 1 1/2"x1 1/2" [40x40mm], 14 GAGE, TO PROVIDE 1" [25mm] MINIMUM OVERLAP OF OPENING ON ALL 4 SIDES.
4. BREAKAWAY DUCT CONNECTION: CONTRACTOR'S OPTION OF TYPES SHOWN IN SMACNA.
5. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING THE FUSIBLE LINK OR LINKS.
6. PROVIDE 1/4" TO 1/2" [6 TO 15mm] CLEARANCE ON HEIGHT AND WIDTH. FILL OPEN SPACE WITH ROCK WOOL FIRESTOP FIBER.
7. ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND MECHANICAL ROOM FLOORS, SHALL BE PROVIDED WITH 3" [75mm] HIGH CONCRETE CURB AROUND OPENING FOR DUCT TO PROVIDE SPILL CONTAINMENT. (DUCTS WITHIN PEM SHALL INCLUDE 3" HIGH WELDED AIR AND WATER TIGHT STANDING SEAM METAL LIP TO PREVENT MOISTURE WITHIN PEM FROM FALLING THROUGH PEM FLOOR.)

3 SECTION THRU FIRE DAMPER INSTALLATION

NTS



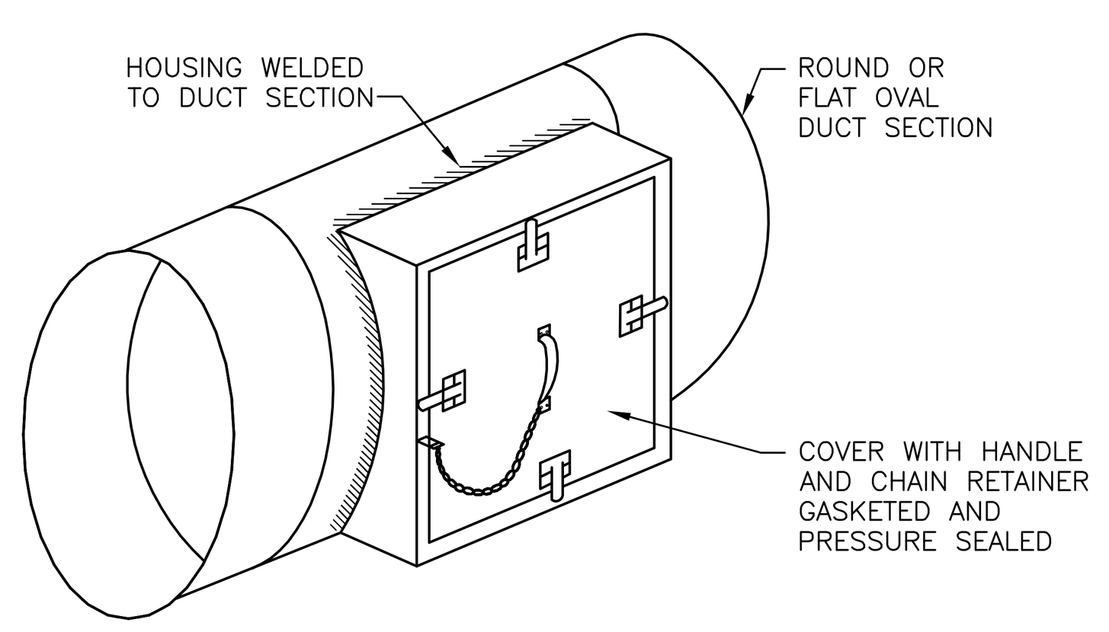
PLAN VIEW– PREFERRED



PLAN VIEW–ALTERNATE

4 SUPPLY DUCT TAKEOFFS - AIR TERMINAL UNITS

NTS



5 ACCESS SECTION FOR ROUND/OVAL DUCT

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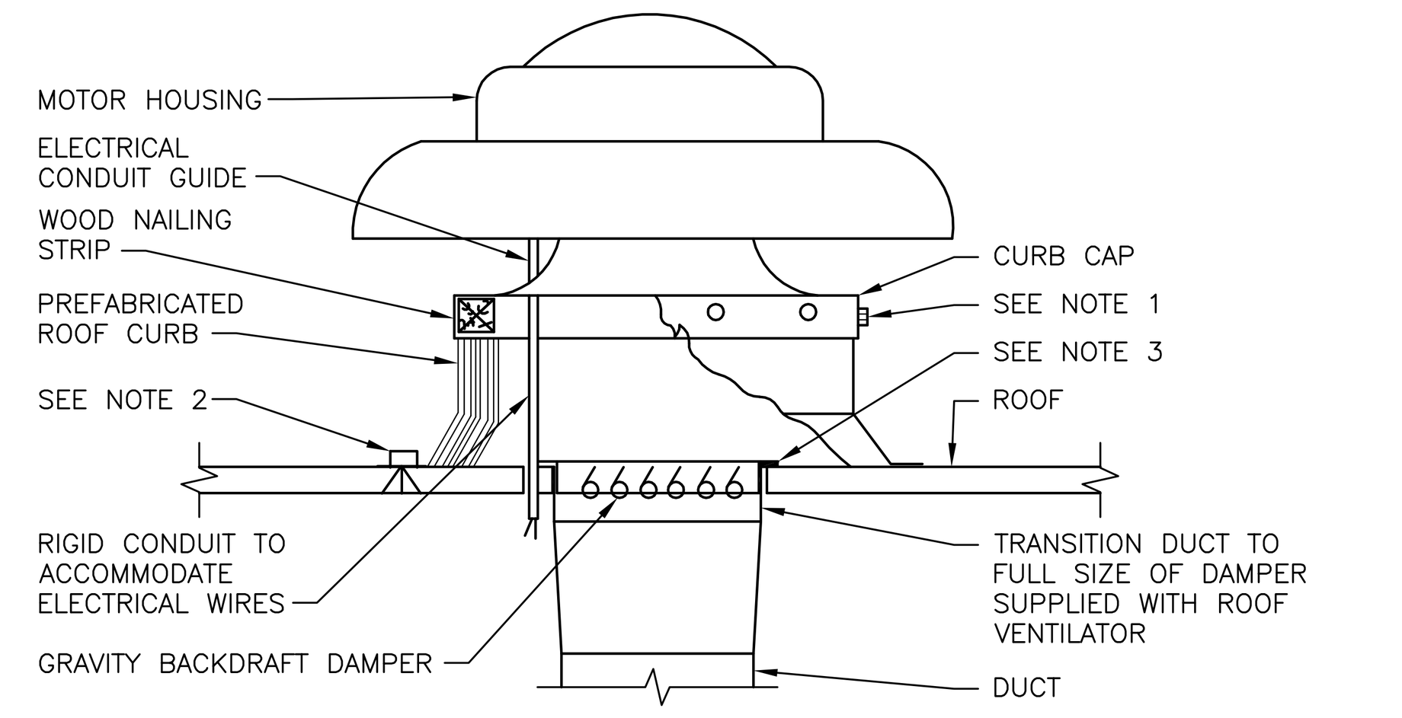
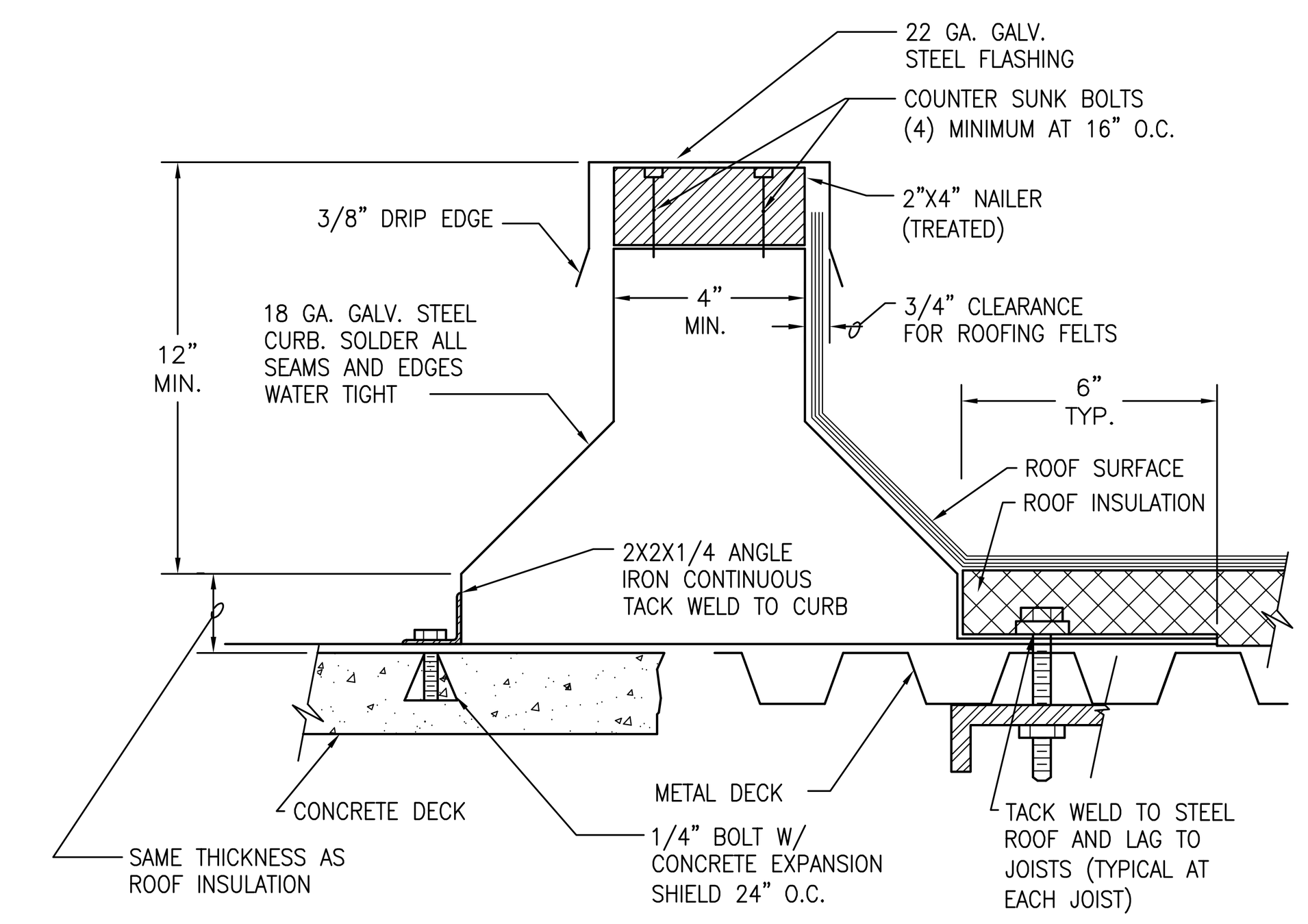


NOTES:

1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 3/8" [10mm] CADMIUM PLATED LAG BOLTS NOT OVER 12" [300mm] ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).
3. RUN ELECTRICAL/BAS CONTROL LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

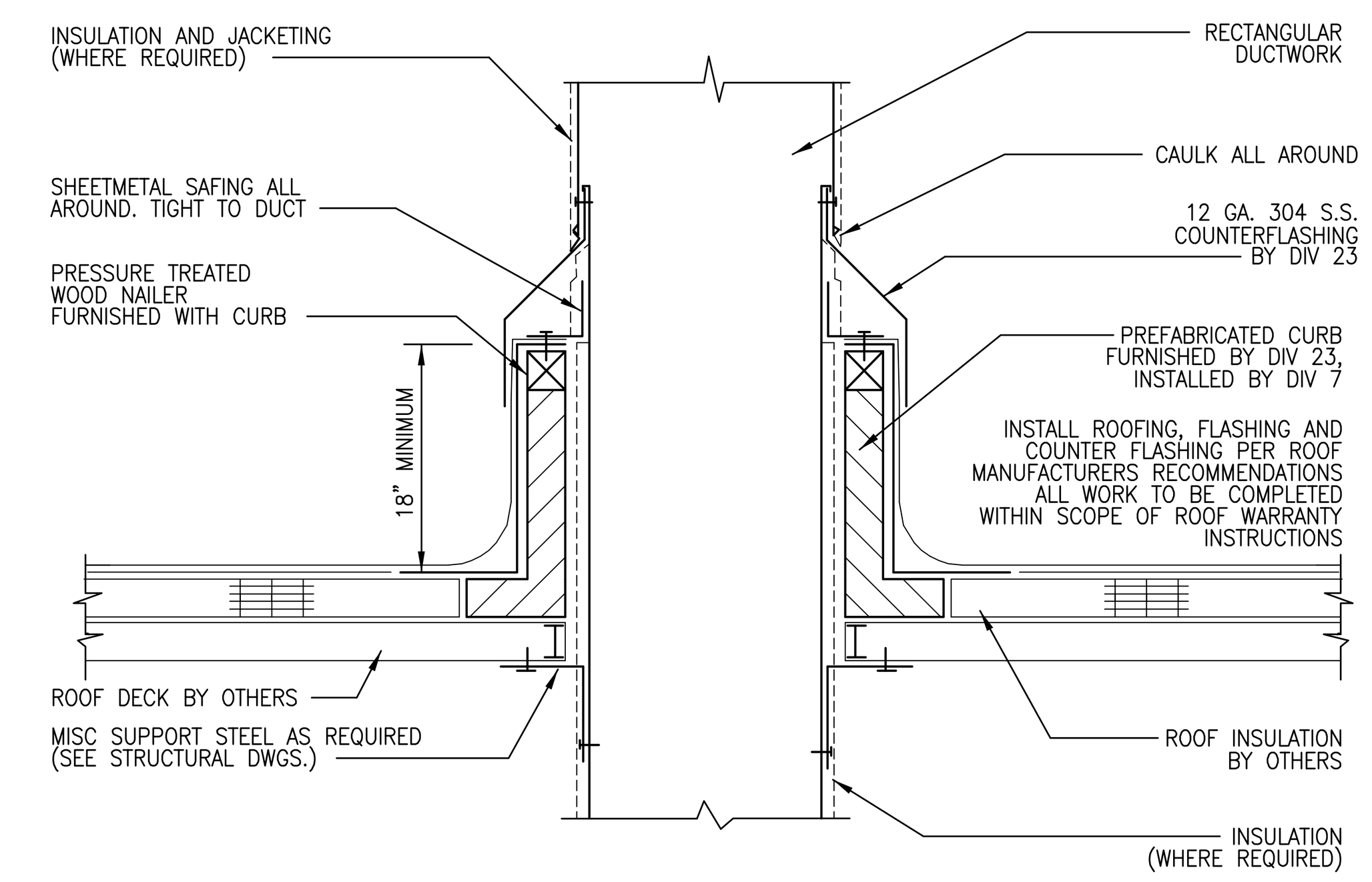
6 POWER ROOF VENTILATOR

NTS



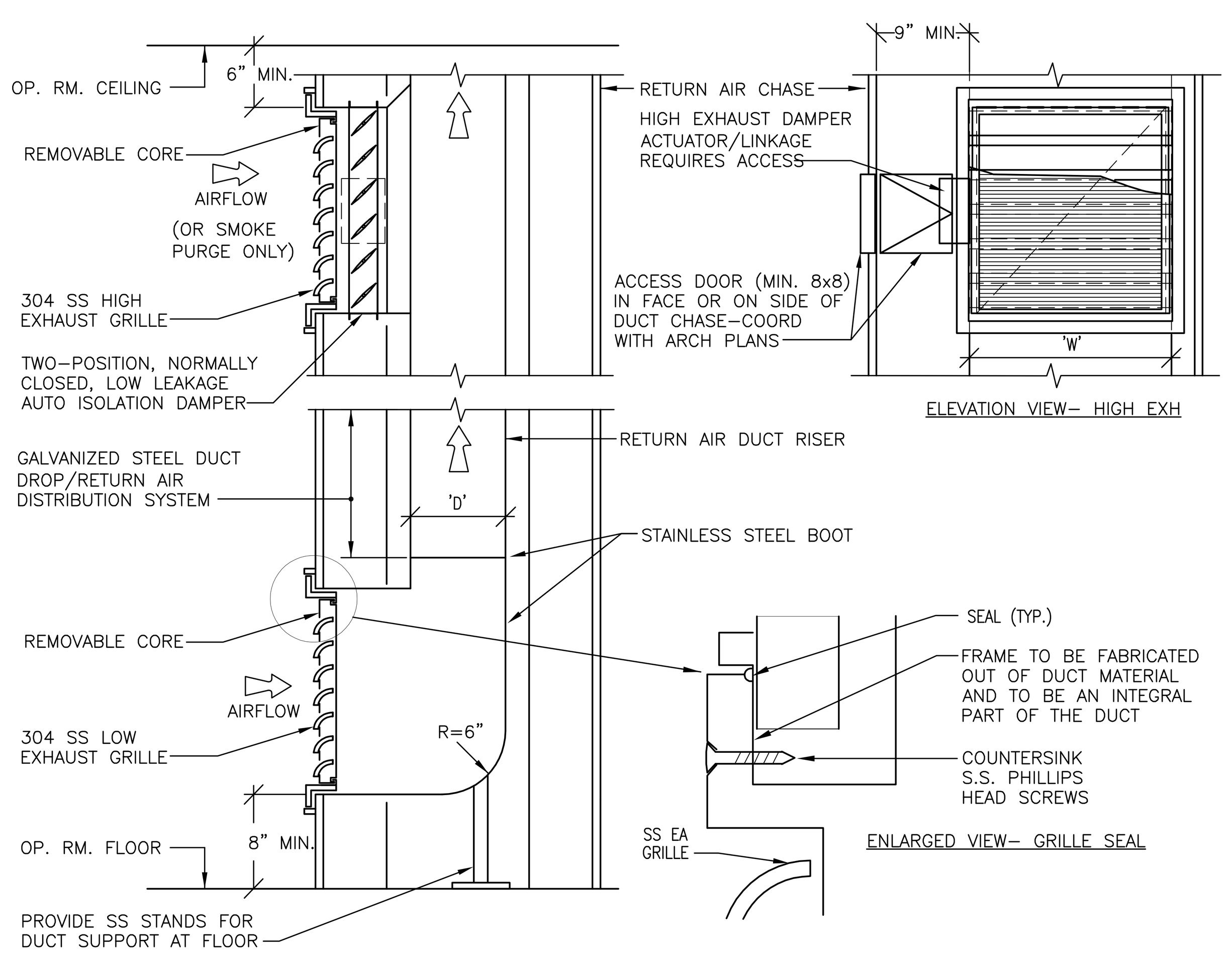
7 DUCTWORK AND EQUIPMENT SUPPORT RAIL

NTS



8 RECTANGULAR DUCT ROOF PENETRATION

NTS

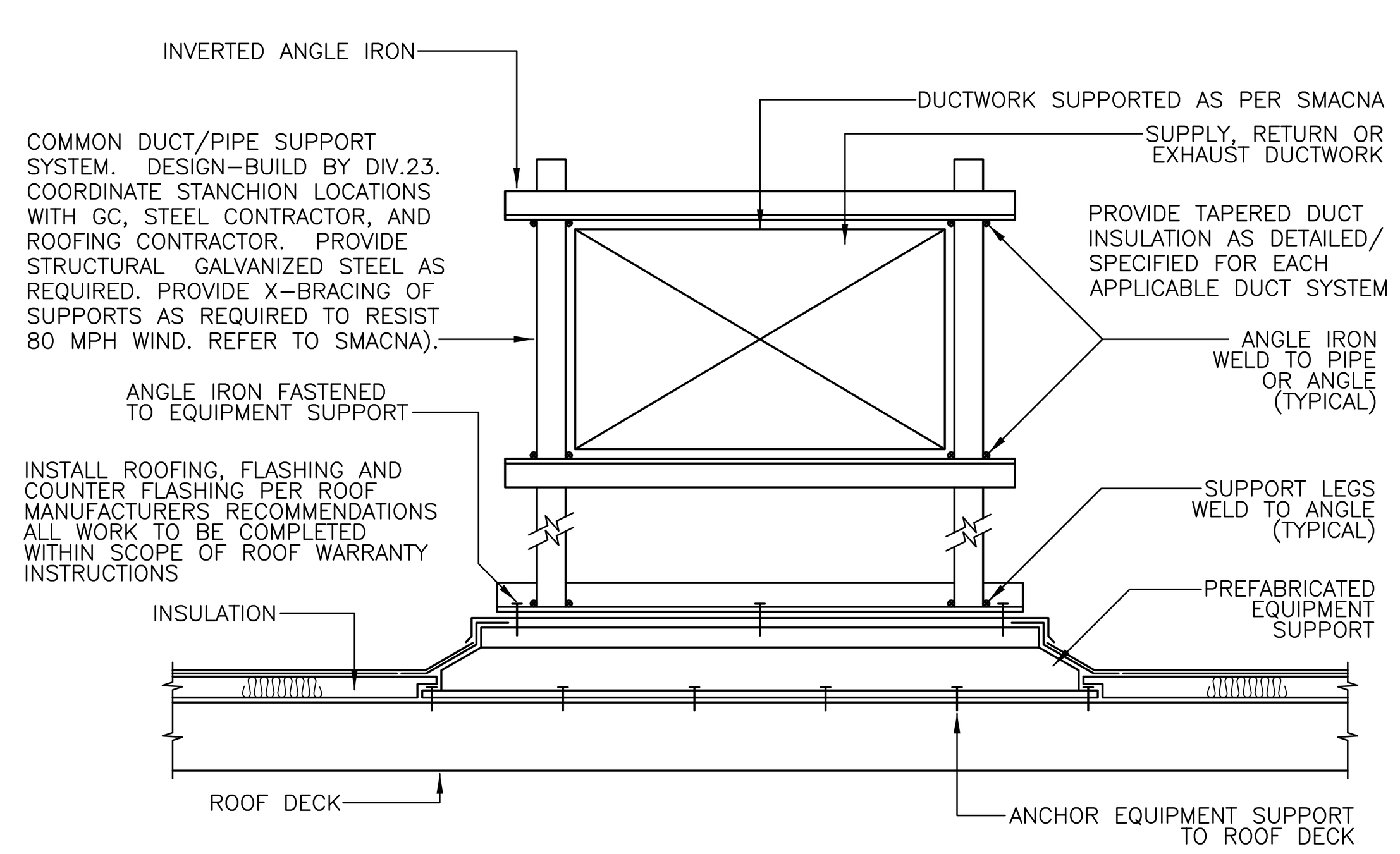


NOTES:

1. COORDINATE LOCATION OF RETURN AIR INLETS ABOVE FLOOR/COVE BASE AND BELOW LINE OF CEILING TO ALLOW PROPER PLACEMENT AND SEAL AROUND RETURN REGISTERS.
2. FOR OP. RMS. WITH LEAD SHIELDING, COORDINATE RETURN DUCT CHASES TO INCLUDE INTERNAL/BACK OF CHASE LEAD LINING TO ELIMINATE DUCT PENETRATIONS THROUGH LINING.
3. REFER TO PLANS AND SCHEDULES FOR CHASE, DUCT, DAMPER, & REGISTER TYPES/SIZES.

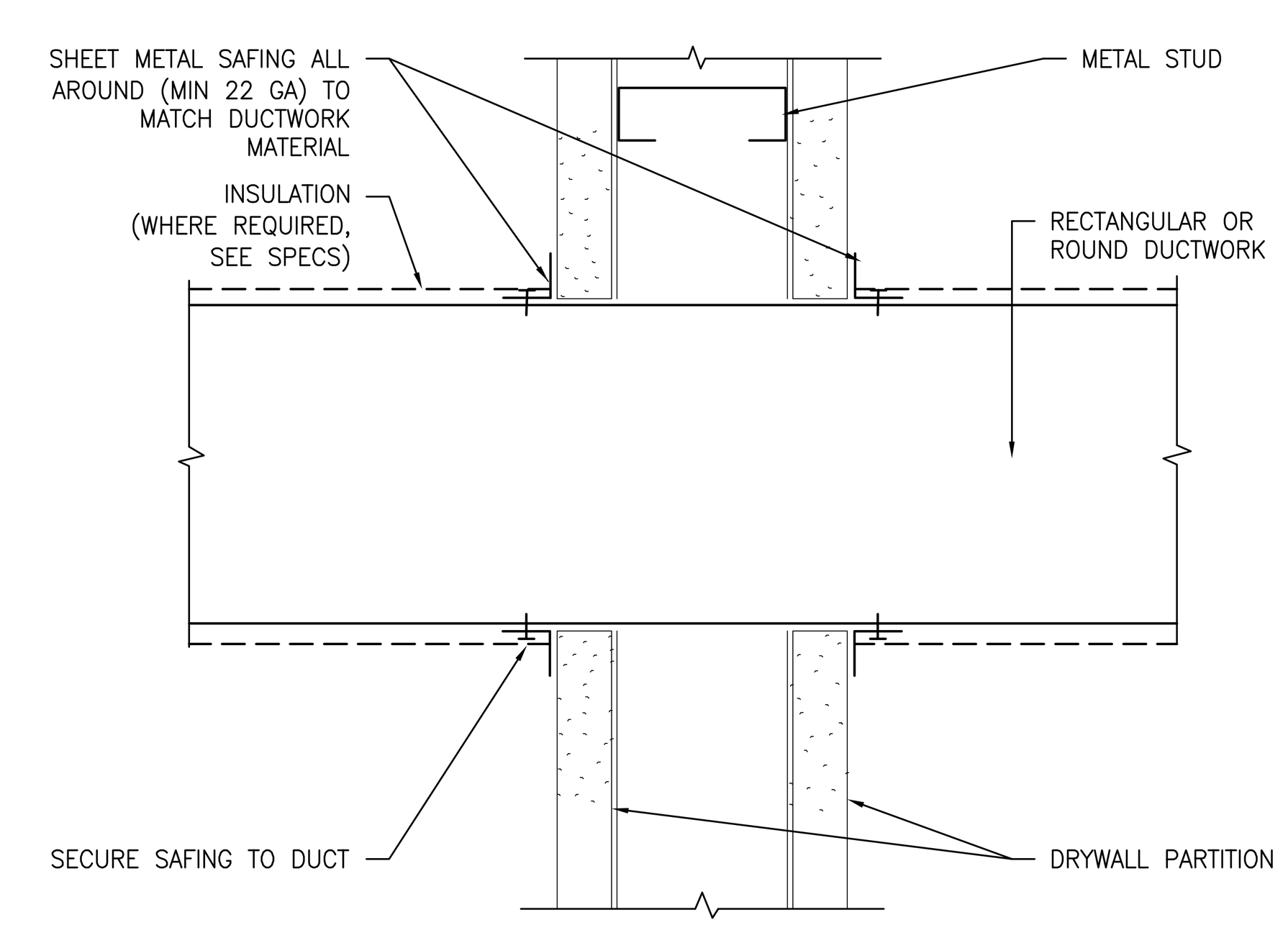
9 OPERATING ROOM RETURN AIR (LOW AND HIGH/SMK PRG)

NTS



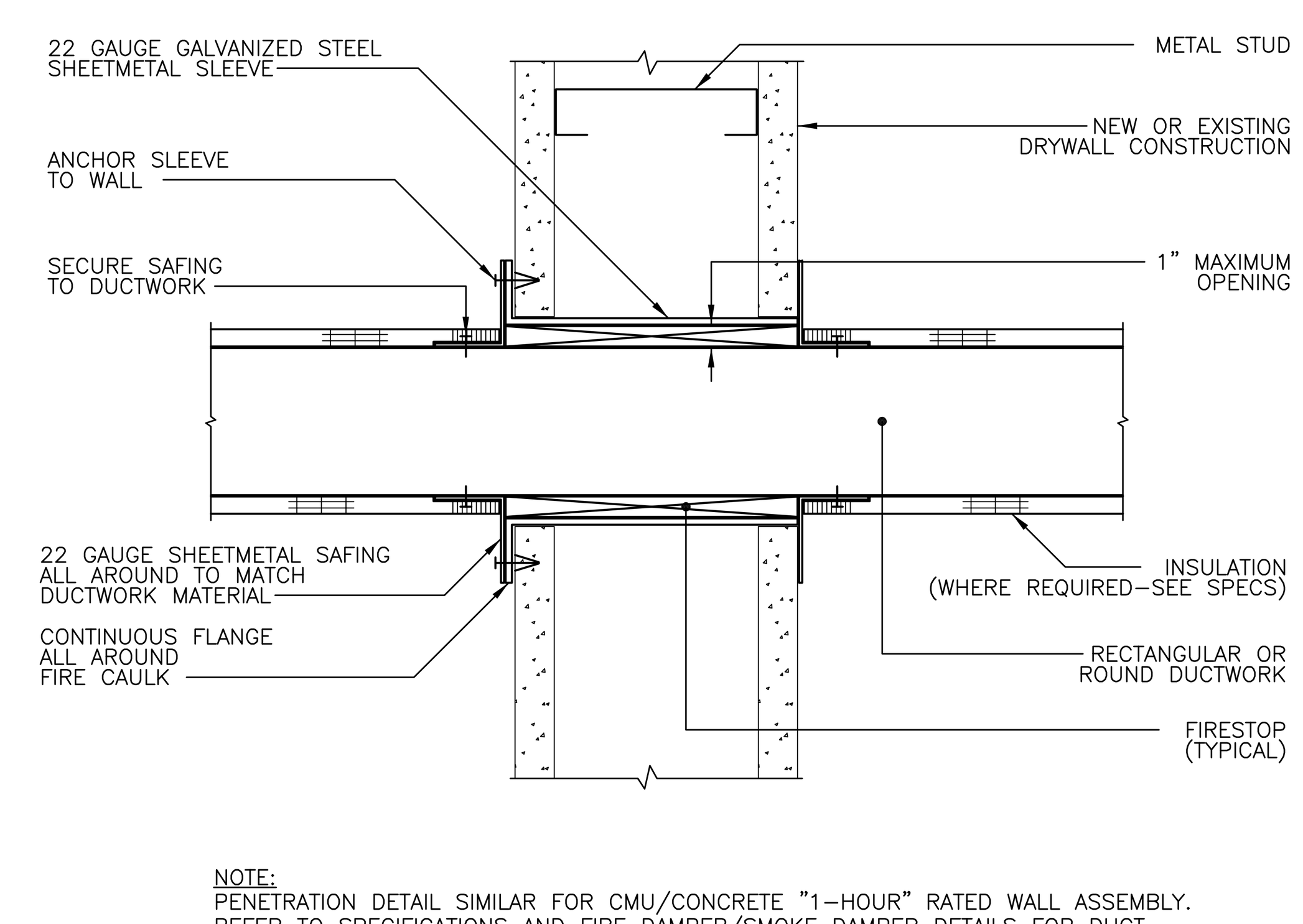
10 DUCTWORK/PIPE SUPPORT ON ROOF

NTS



11 DUCTWORK PENETRATION DETAIL (NON-RATED WALLS)

NTS



NOTE:
PENETRATION DETAIL SIMILAR FOR CMU/CONCRETE "1-HOUR" RATED WALL ASSEMBLY. REFER TO SPECIFICATIONS AND FIRE DAMPER/SMOKE DAMPER DETAILS FOR DUCT PENETRATIONS OF TWO-HOUR/SMOKE RATED ASSEMBLIES.

12 DUCT PENETRATION - "1-HOUR" RATED WALLS ONLY

NTS

100% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC PROFESSIONAL ENGINEER

THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

ARCHITECT / ENGINEERS:

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Drawing Title	Project Title	Project Number	
MECHANICAL DETAILS	RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS	581-13-101	Office of Construction and Facilities Management
		Building Number: 1S	
Approved: Medical Center Director	Location: HUNTINGTON, WV	Drawing Number: M5.02	Department of Veterans Affairs
	Date: 01-15-2016 / Checked: MPP / Drawn: JLR		

VA FORM 08-6231

P:\0499_DVA\1-0499-0025 Huntington WV Renovate Surgical Service and Operating Rooms\2_Drawings\1_Cad\1_Current Submittal Phase\6_MeM5.02 - Details - Airside.dwg 2-29-16 01:16:34 PM msmith

GENERAL SHEET NOTES:

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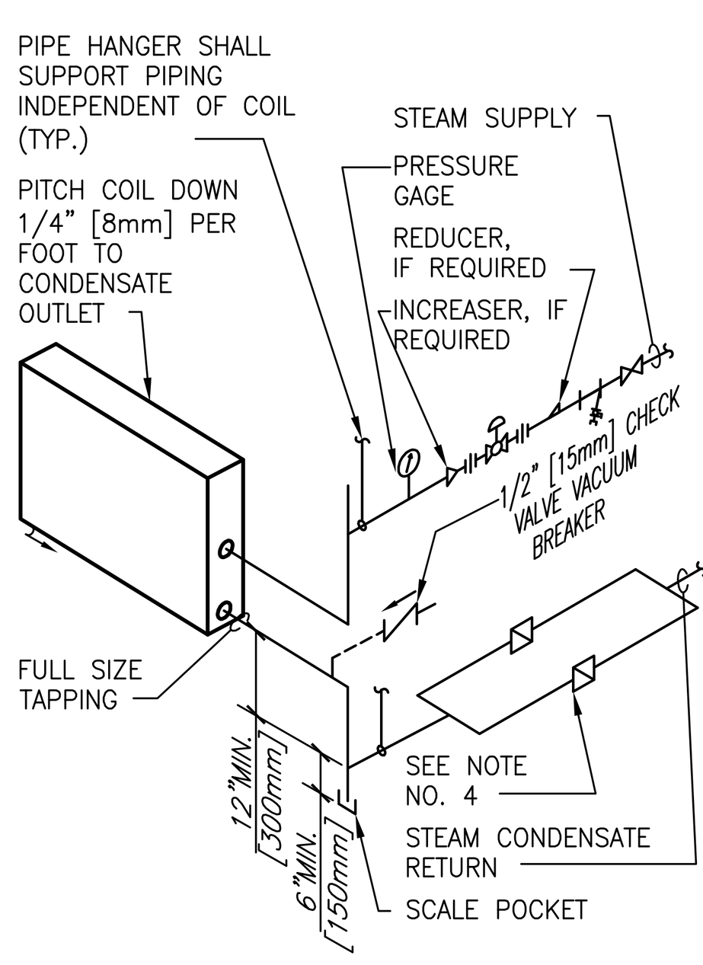
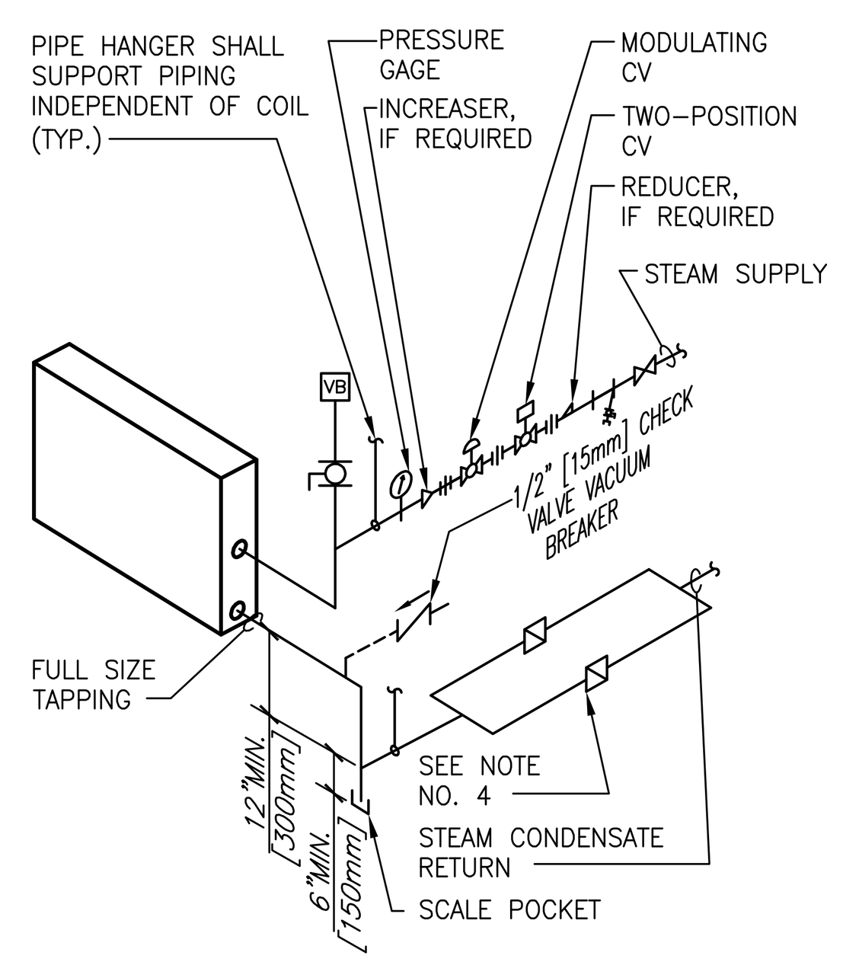


NOTE:

1. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
2. TRAP EACH COIL SEPARATELY WHEN INSTALLED IN A BANK OF TWO OR MORE HIGH. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.
3. TWO TRAP ASSEMBLIES IN PARALLEL ARE SHOWN. TWO TRAPS REQUIRED WHEN CONDENSATE LOAD IS 5,000 LBS/HR [2400 KG/HR] OR GREATER.

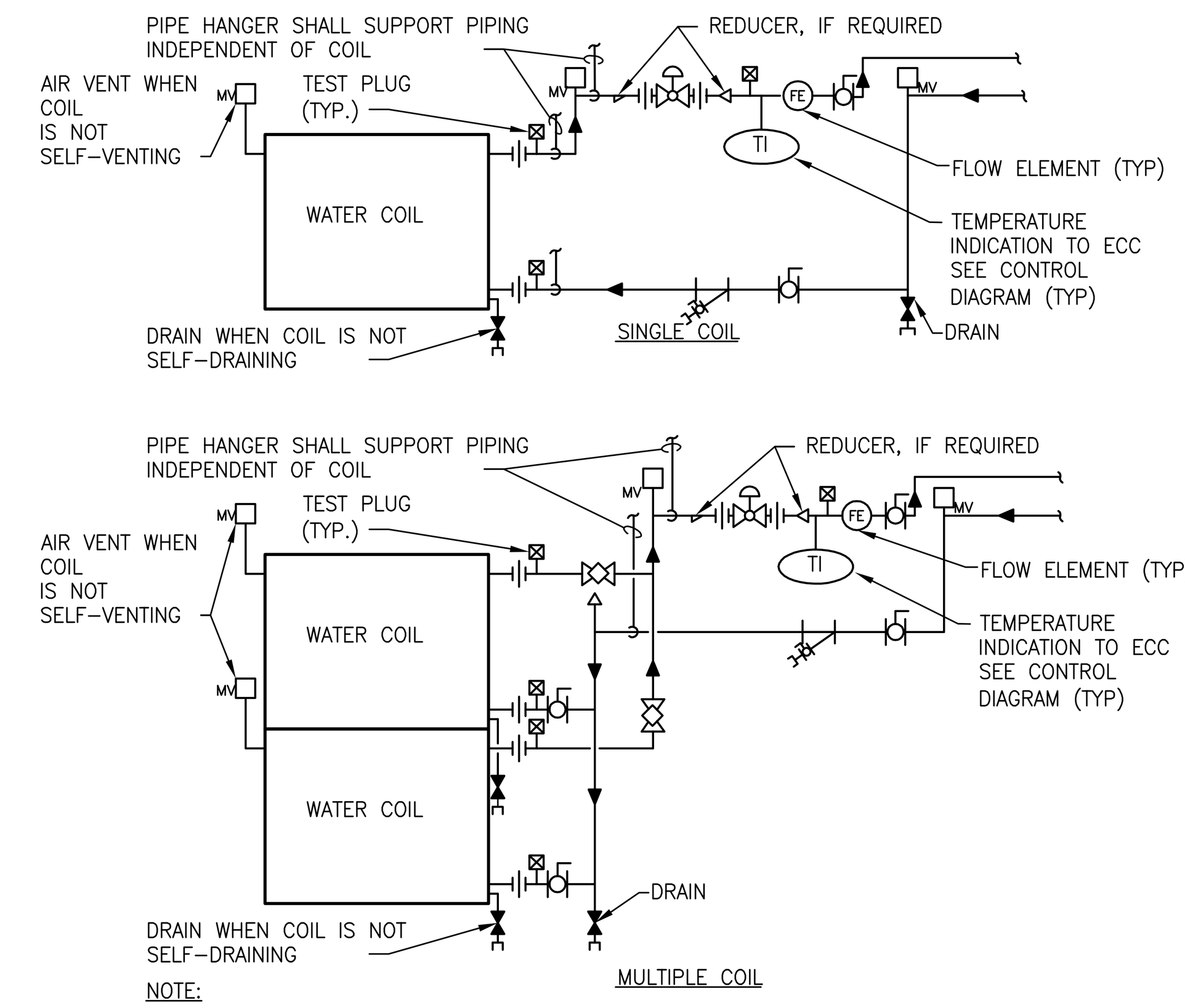
1 STEAM COIL - PIPING CONNECTIONS
NTS



NOTE:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATOR UNITS, THE RUNOUT PIPING FOR CONNECTIONS TO COIL SHALL BE INSTALLED WITH SWING JOINTS TO ALLOW FOR THE VIBRATION.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. TRAP EACH COIL SEPARATELY WHEN INSTALLED IN A BANK OF TWO OR MORE HIGH. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.
4. TWO TRAP ASSEMBLIES IN PARALLEL ARE SHOWN. TWO TRAPS REQUIRED WHEN CONDENSATE LOAD IS 5,000 LBS/HR [2400 KG/HR] OR GREATER.
5. SUPPLY & RETURN PIPES ARE SHOWN FROM SAME END. REHEAT COIL MAY HAVE SUPPLY & RETURN PIPES FROM OPPOSITE ENDS.

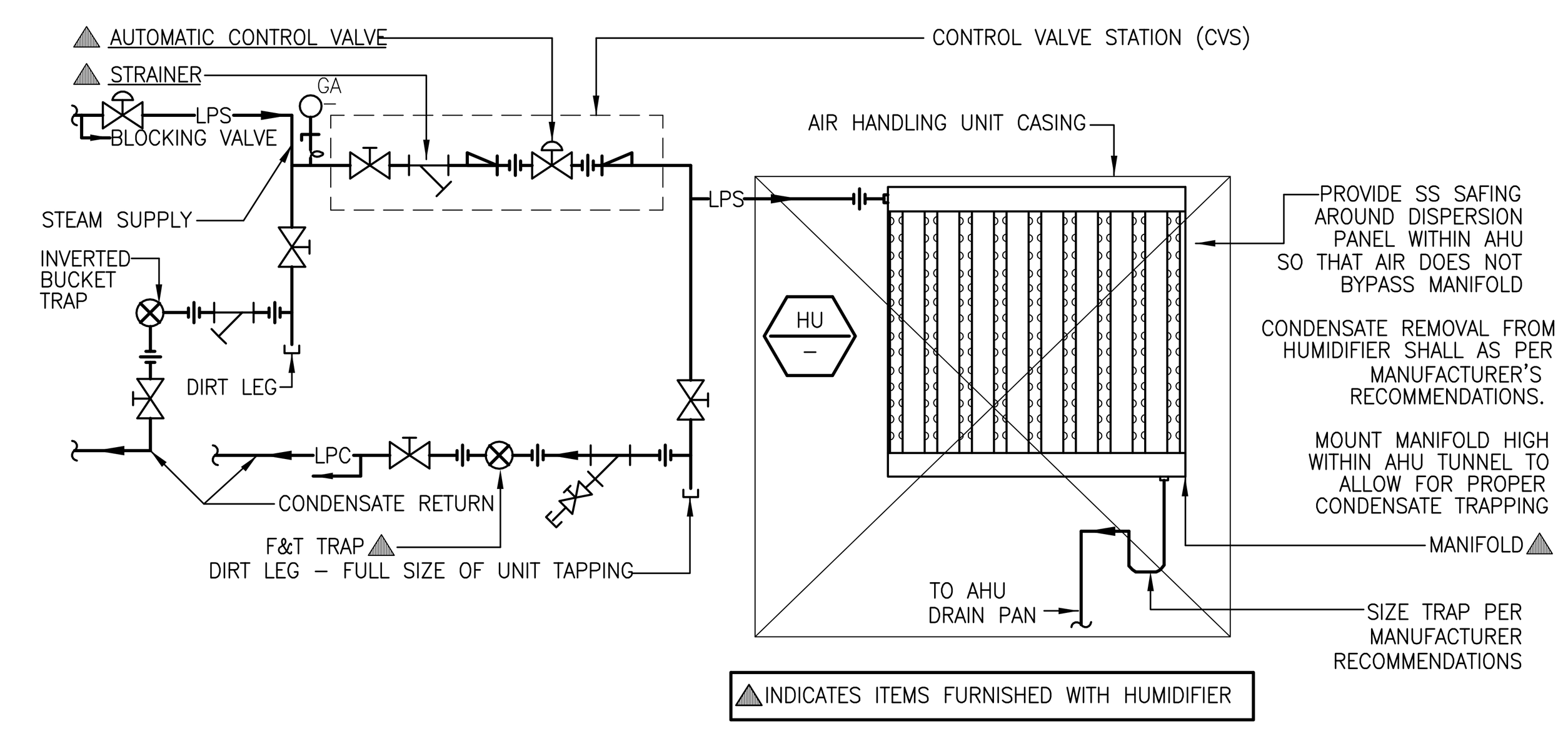
2 STEAM COIL - PIPING CONNECTIONS
NTS



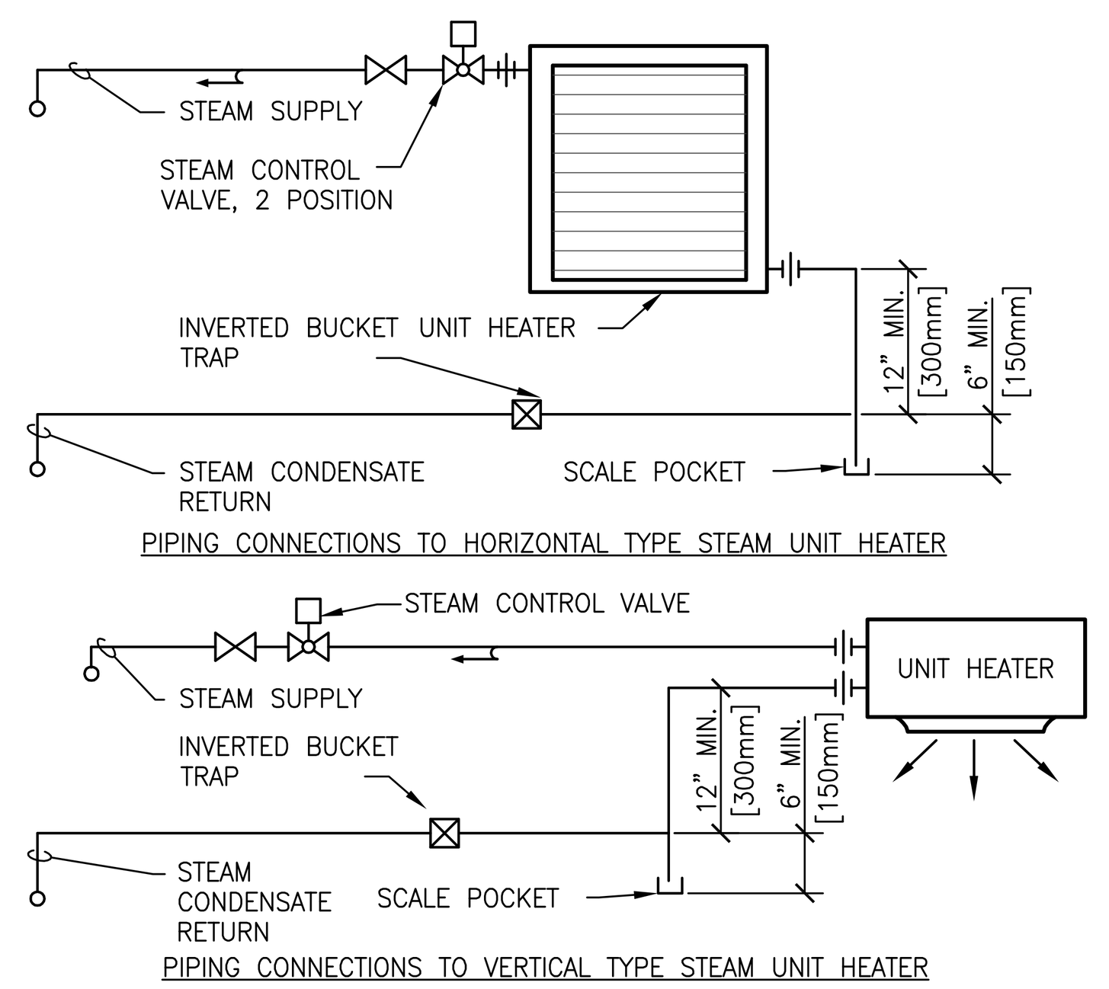
NOTE:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" [100mm]ø PIPE & SMALLER. TYPE "H-P" FOR 5" [125mm]ø PIPE & LARGER.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALES, OR EQUIPMENT.
3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

3 WATER COILS - PIPING CONNECTIONS
NTS

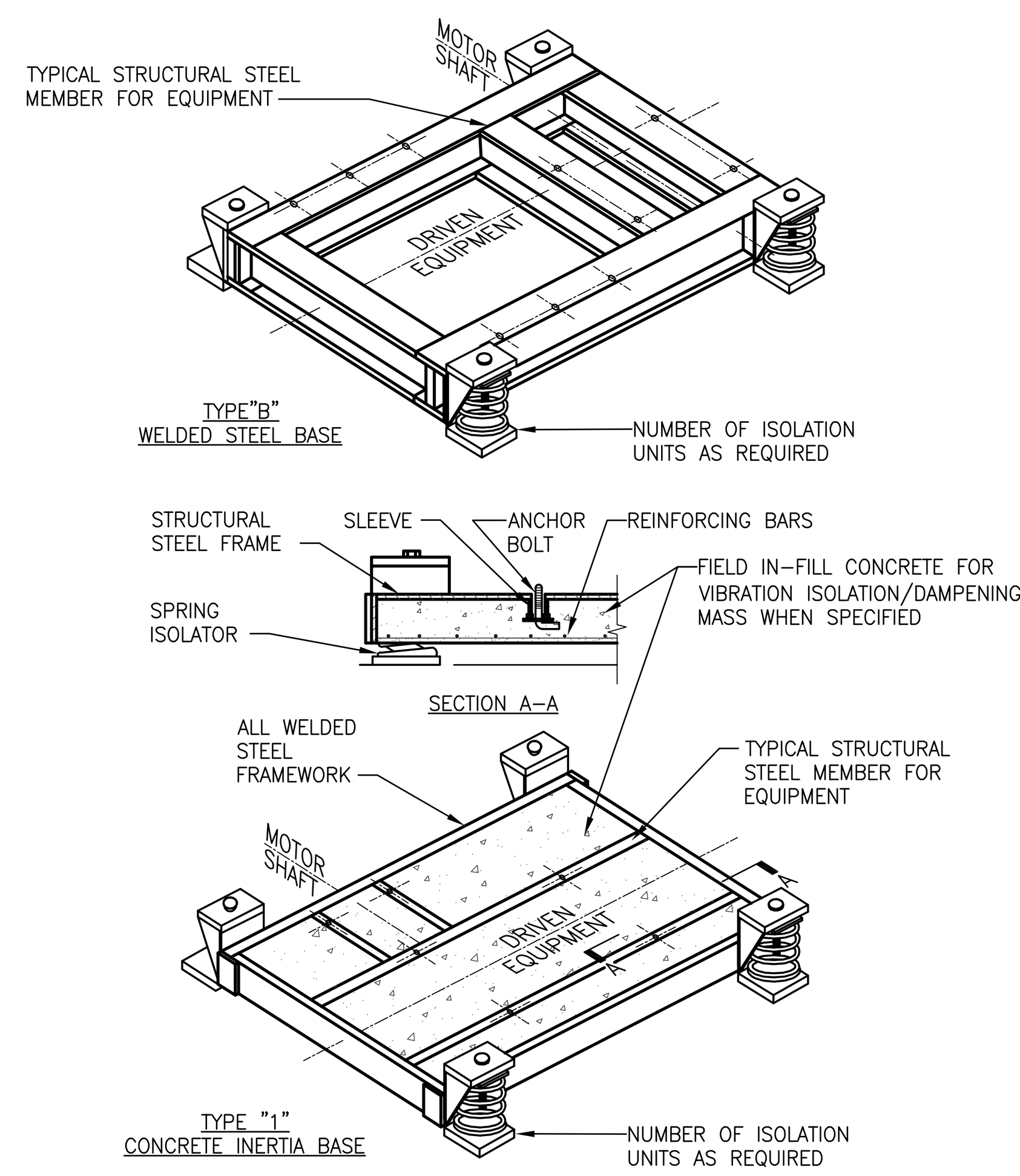


4 AHU STEAM HUMIDIFIER PIPING CONNECTIONS (DISPERSION TYPE)
NTS

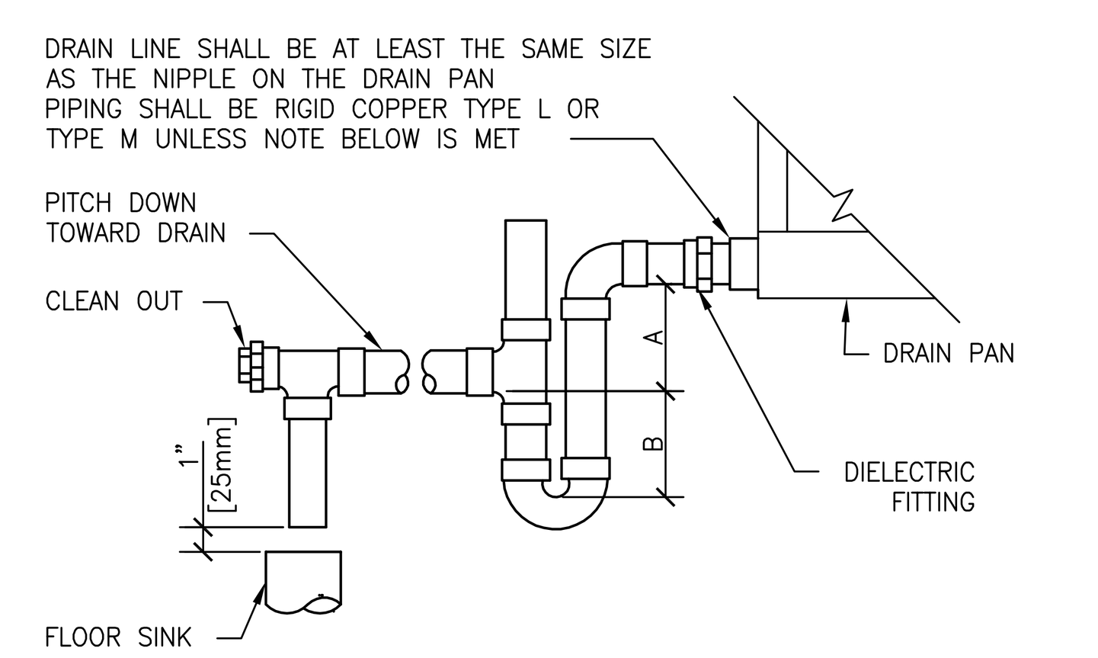


NOTES:
1.UNIT MOUNTED THERMOSTAT SHALL MAINTAIN SPACE TEMPERATURE BY CYCLING THE FAN. THE CONTROL VALVE SHALL BE INTERLOCK WITH THE FAN.

5 UNIT HEATERS (STEAM) PIPING CONNECTIONS
NTS



6 VIBRATION ISOLATION BASES
NTS

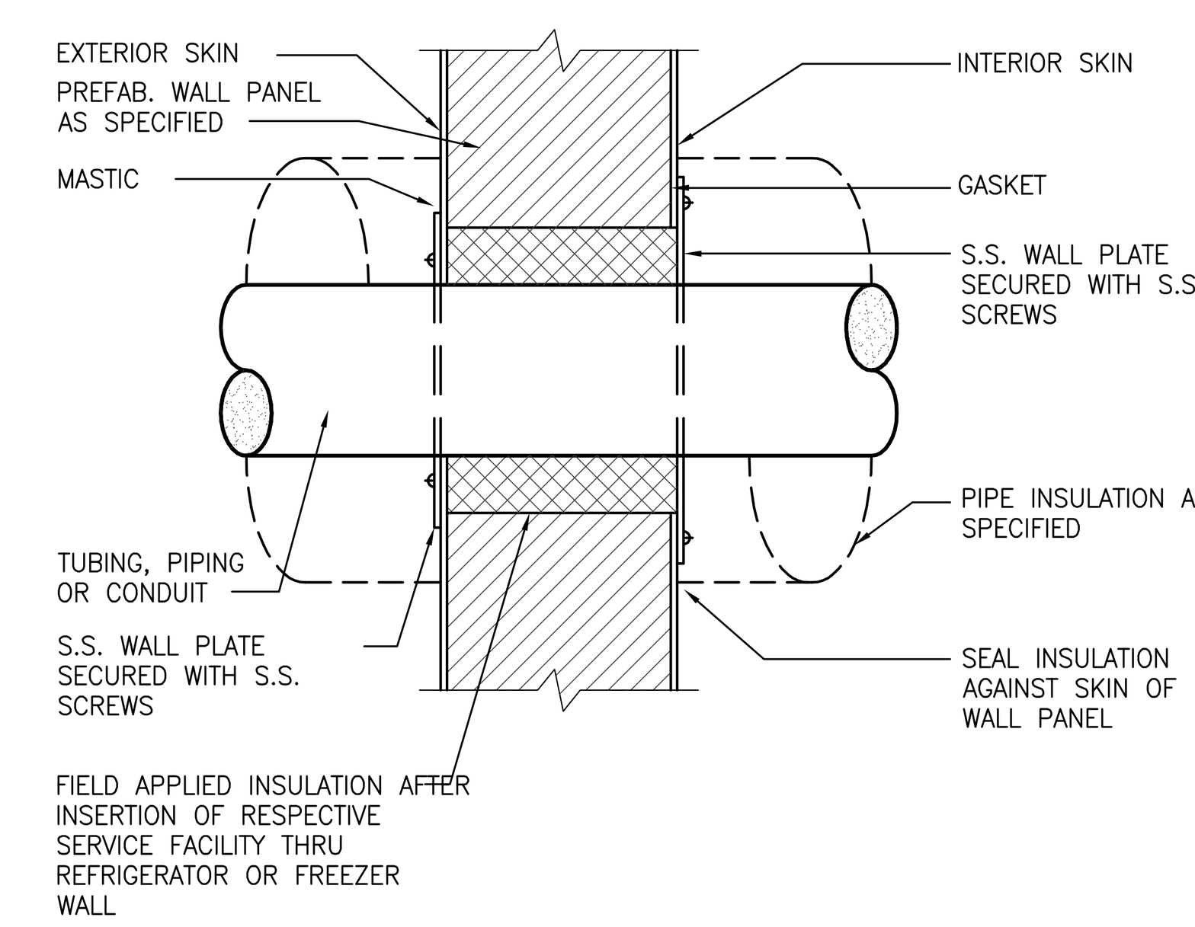


NOTE: 1. PROVIDE COPPER DRAINAGE PIPING AND INSULATE WHERE SPECIFIED. 2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

UNIT TYPE	A	B
DRAW THRU	2" [50mm] PLUS X	X
BLOW THRU	1" [25mm] MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

7 AIR HANDLING UNIT DRAIN TRAP DETAIL
NTS



8 TUBING, PIPING, AND CONDUITS PASSING THROUGH PRE-FAB INSULATED WALL PANELS
NTS

100% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC PROFESSIONAL ENGINEER

ARCHITECT / ENGINEERS:

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Phone: 757-471-0537
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Drawing Title: MECHANICAL DETAILS

Approved: Medical Center Director

Project Title: RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: 581-13-101

Building Number: 1S

Drawing Number: M5.03

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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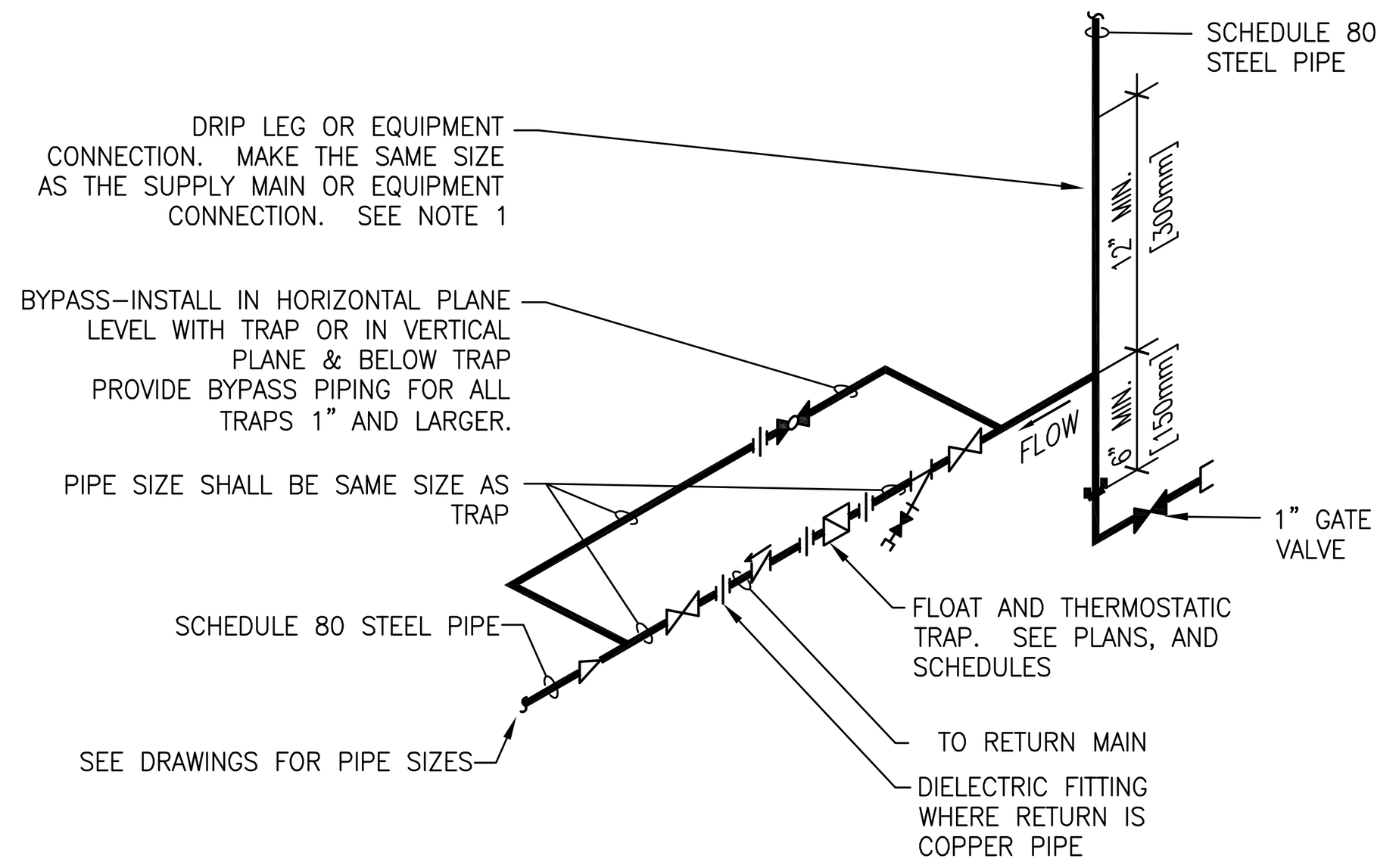
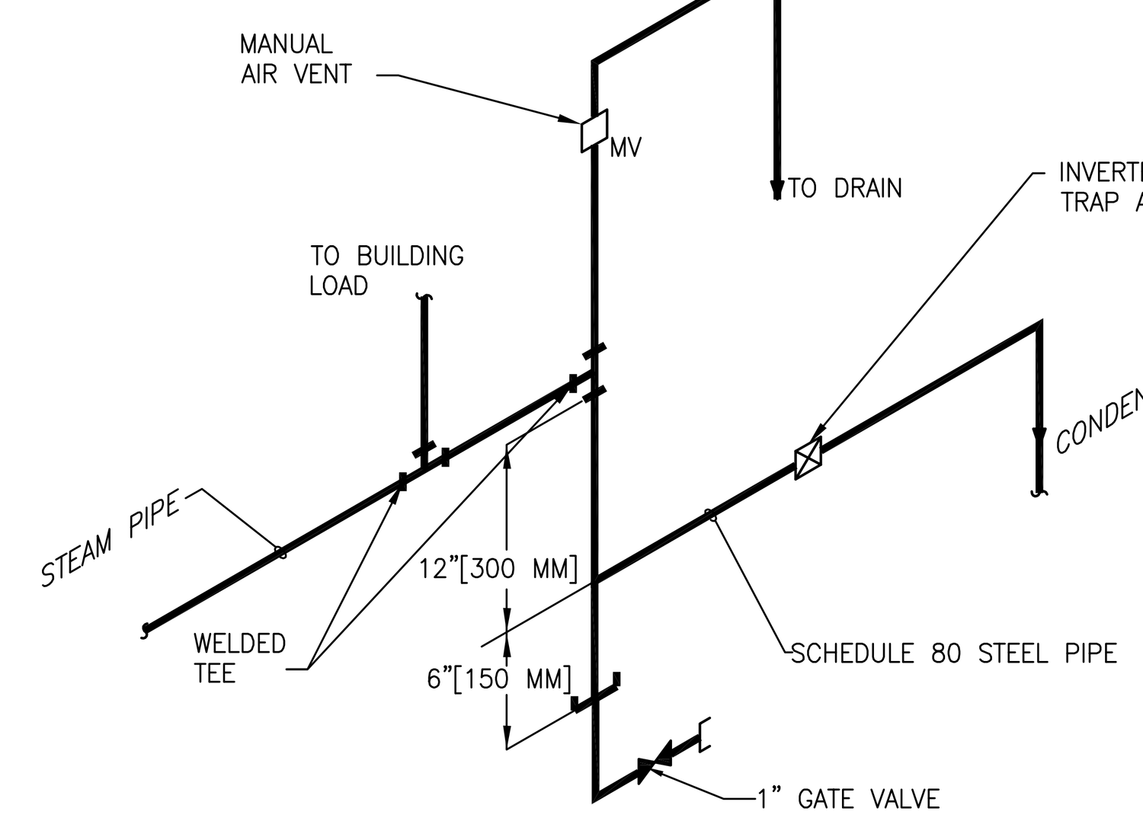


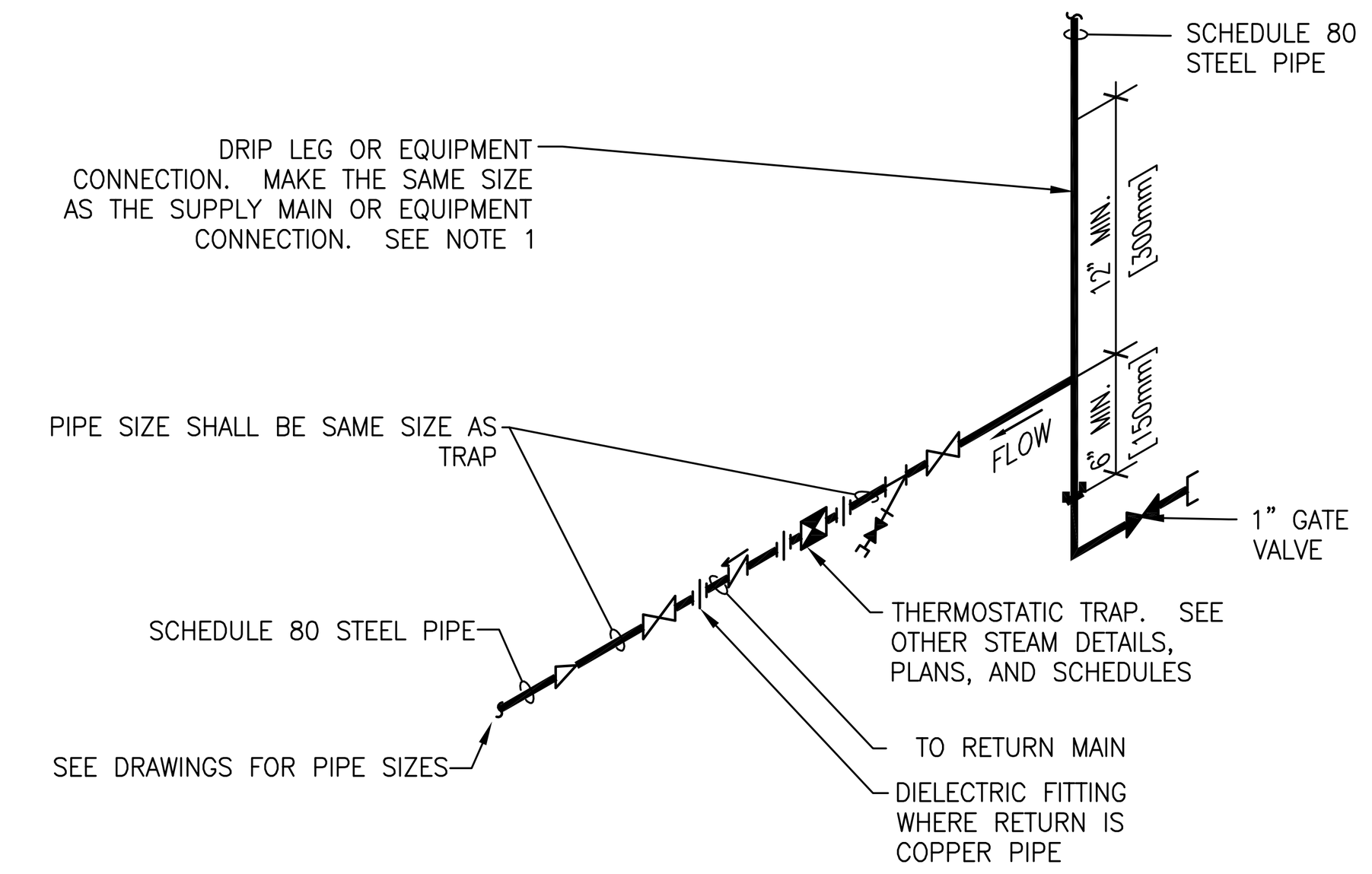
NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.

1 FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY
NTS



2 END OF STEAM LINE DRIP TRAP
NTS



NOTE:

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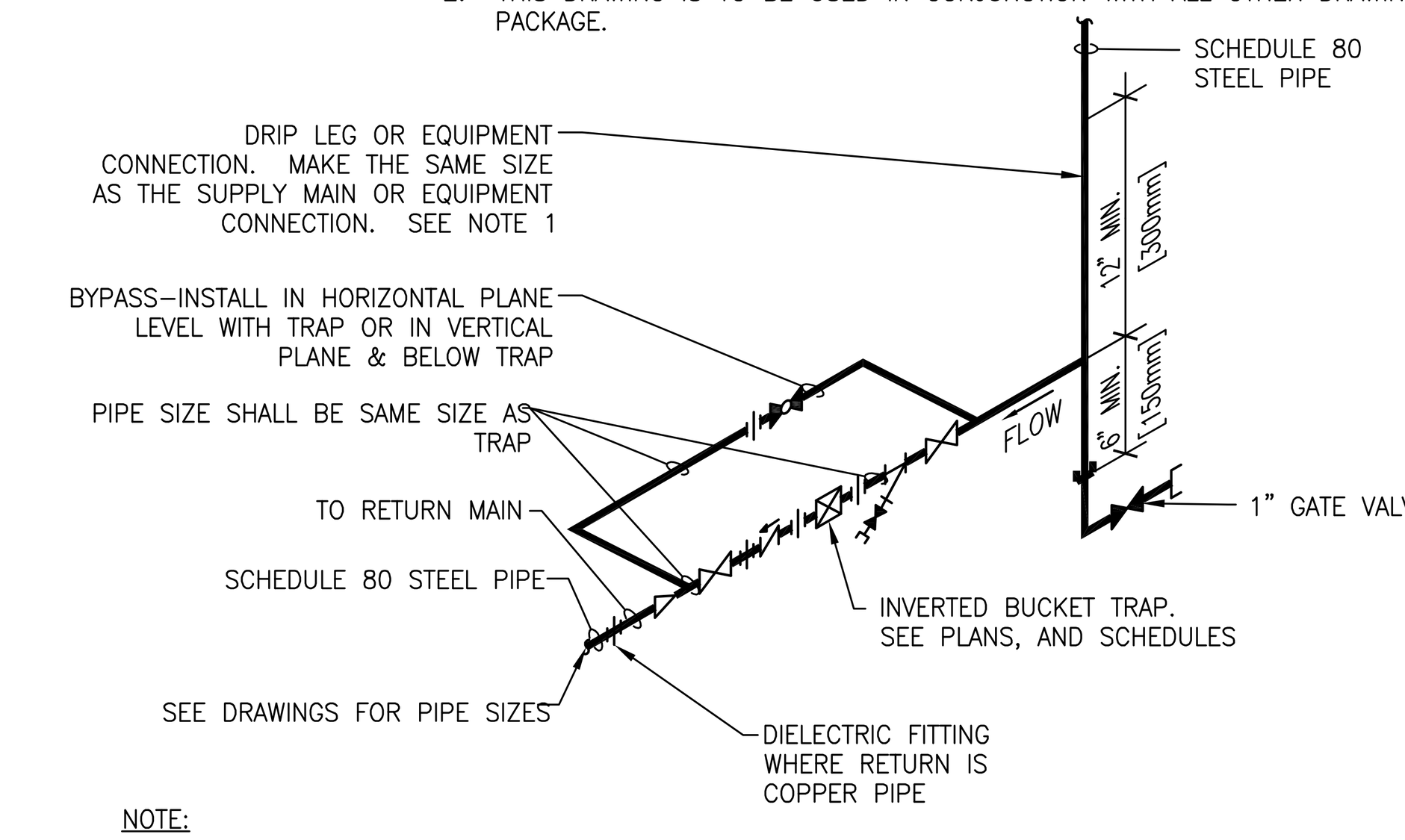
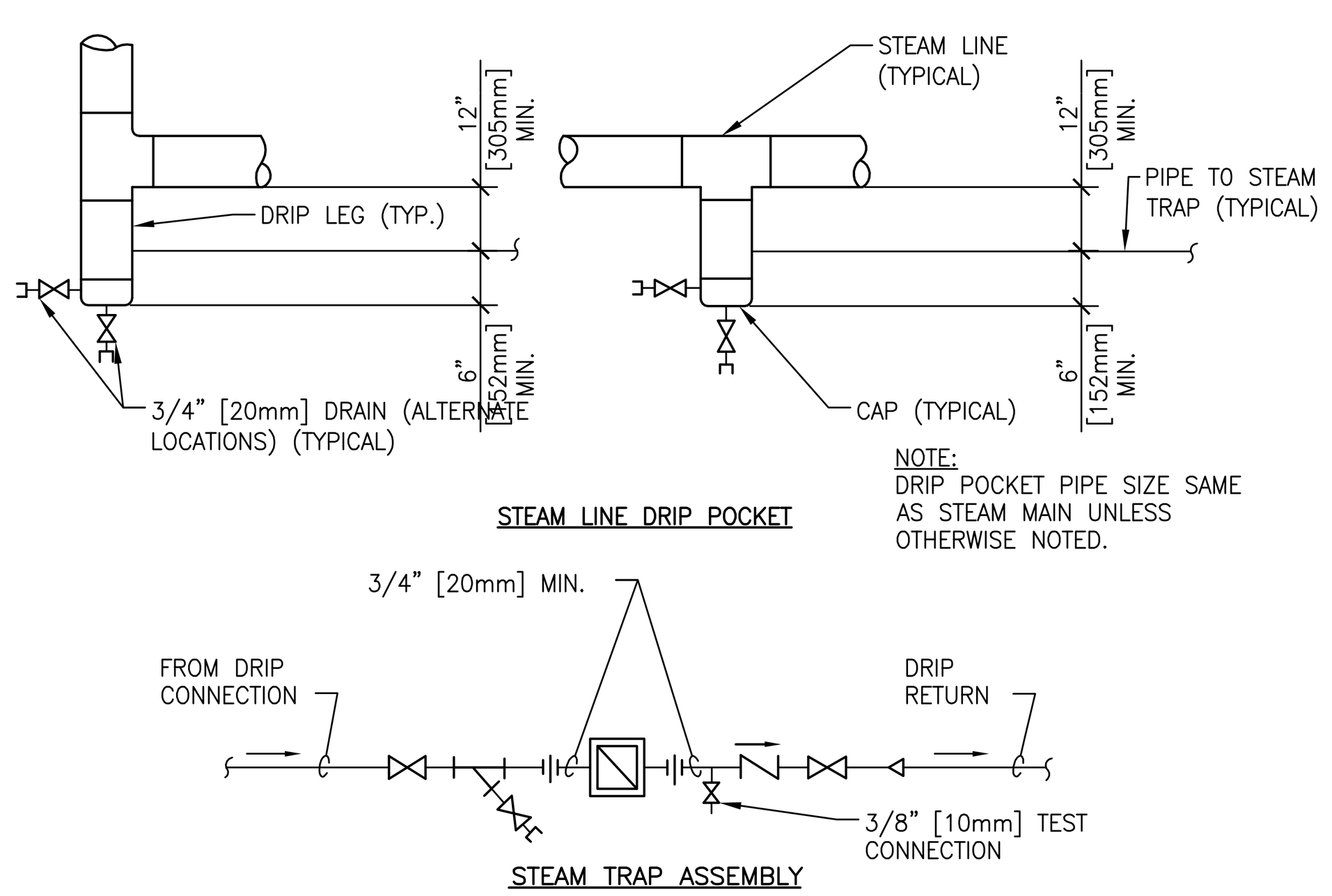
3 THERMOSTATIC STEAM TRAP ASSEMBLY
NTS



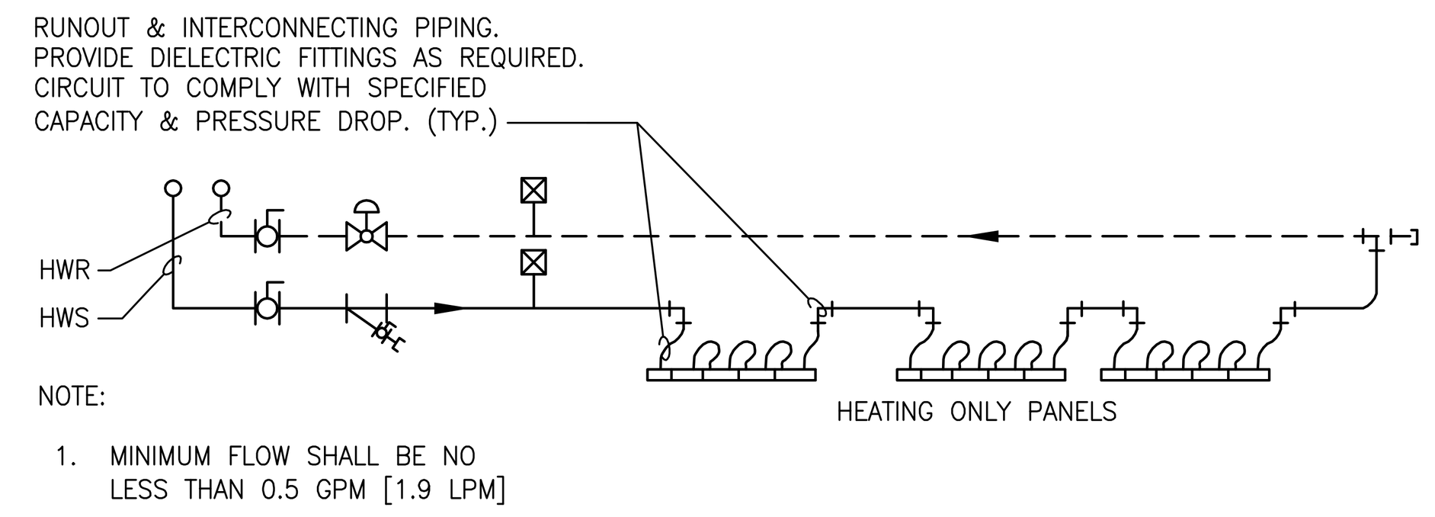
NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.
2. PROVIDE BYPASS PIPING.

4 INVERTED BUCKET STEAM TRAP ASSEMBLY
NTS



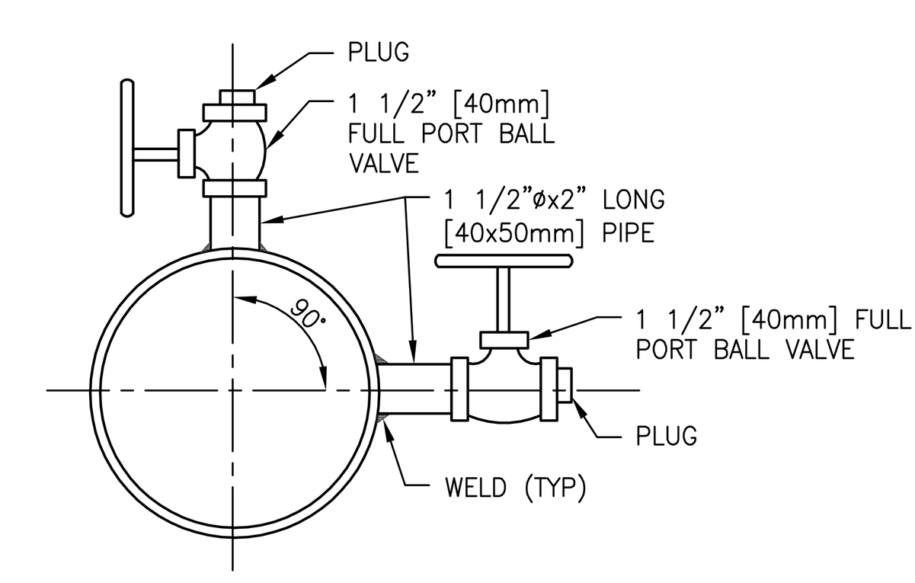
5 STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY
NTS



NOTE:

1. MINIMUM FLOW SHALL BE NO LESS THAN 0.5 GPM [1.9 LPM]

6 HYDRONIC RADIANT CEILING PANELS - PIPING CONNECTIONS
NTS

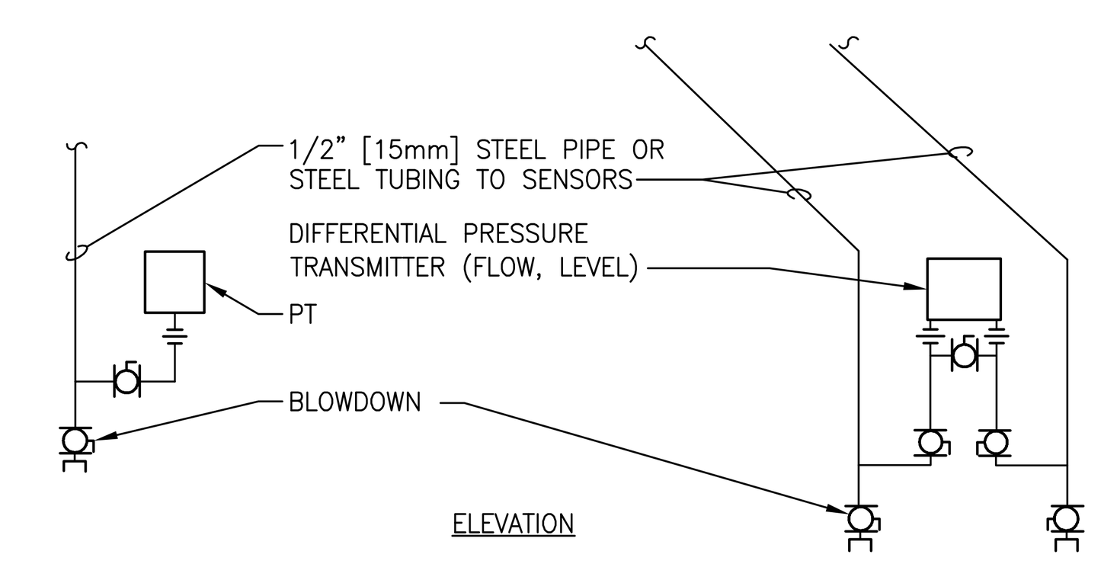


NOTE:

1. PROVIDE IN CHILLED WATER MAIN AND IN CONDENSER WATER MAIN.
2. LOCATE PILOT TUBE TAPS 20 PIPE DIAMETERS DOWNSTREAM AND 10 PIPE DIAMETERS UPSTREAM FROM THE NEAREST PIPE FITTING.

   EITHER TOP OR SIDE LOCATION. BOTH ARE NOT REQUIRED AT SAME LOCATION.

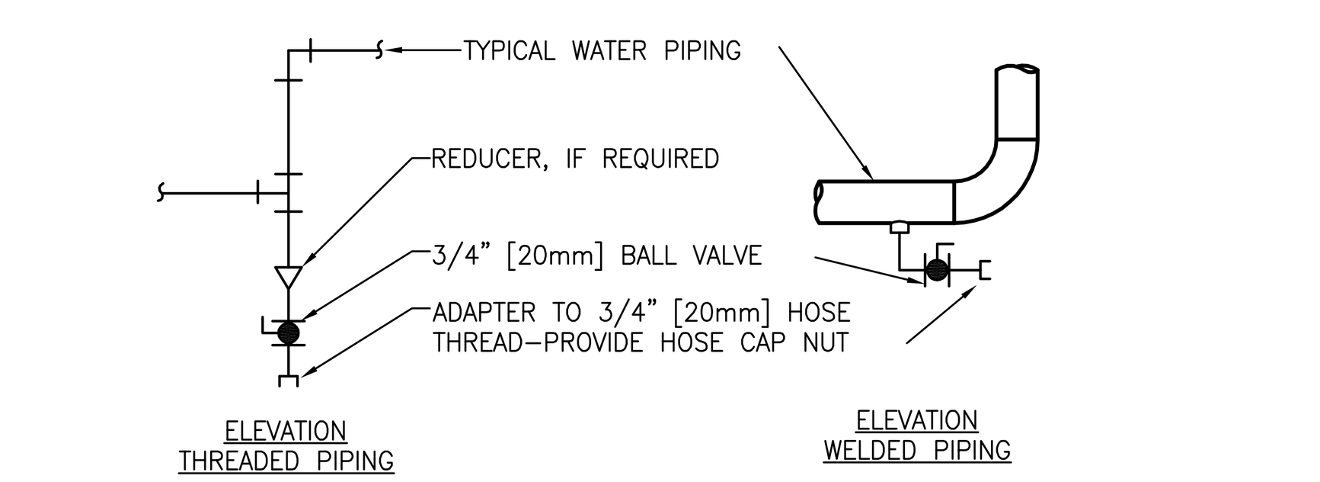
7 PITOT TEST CONNECTIONS
NTS



NOTES:

1. INSTALLATION OF SENSORS AND TRANSMITTERS SHALL CONFORM TO RECOMMENDATIONS OF MANUFACTURERS OF TRANSMITTERS.

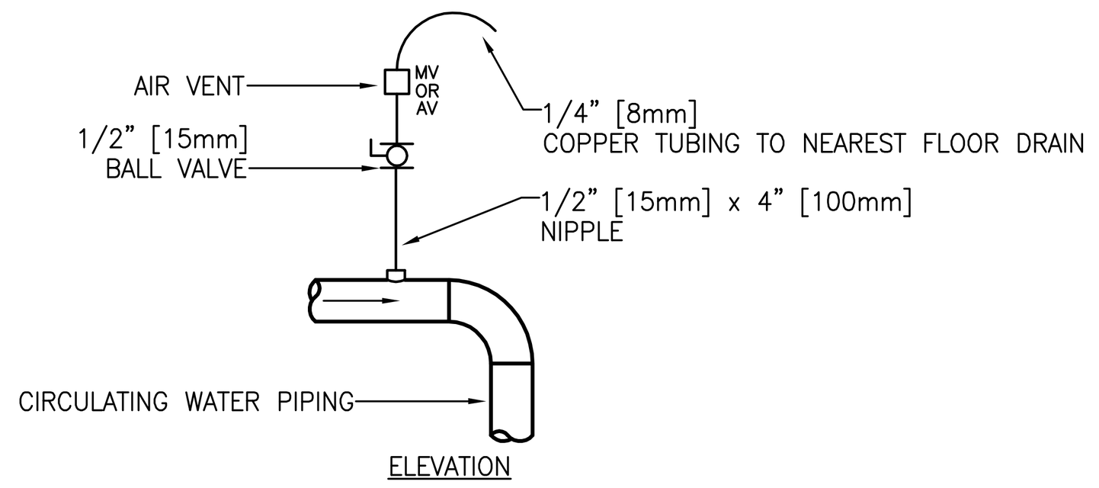
8 PRESSURE TRANSMITTER INSTALLATION
NTS



TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.

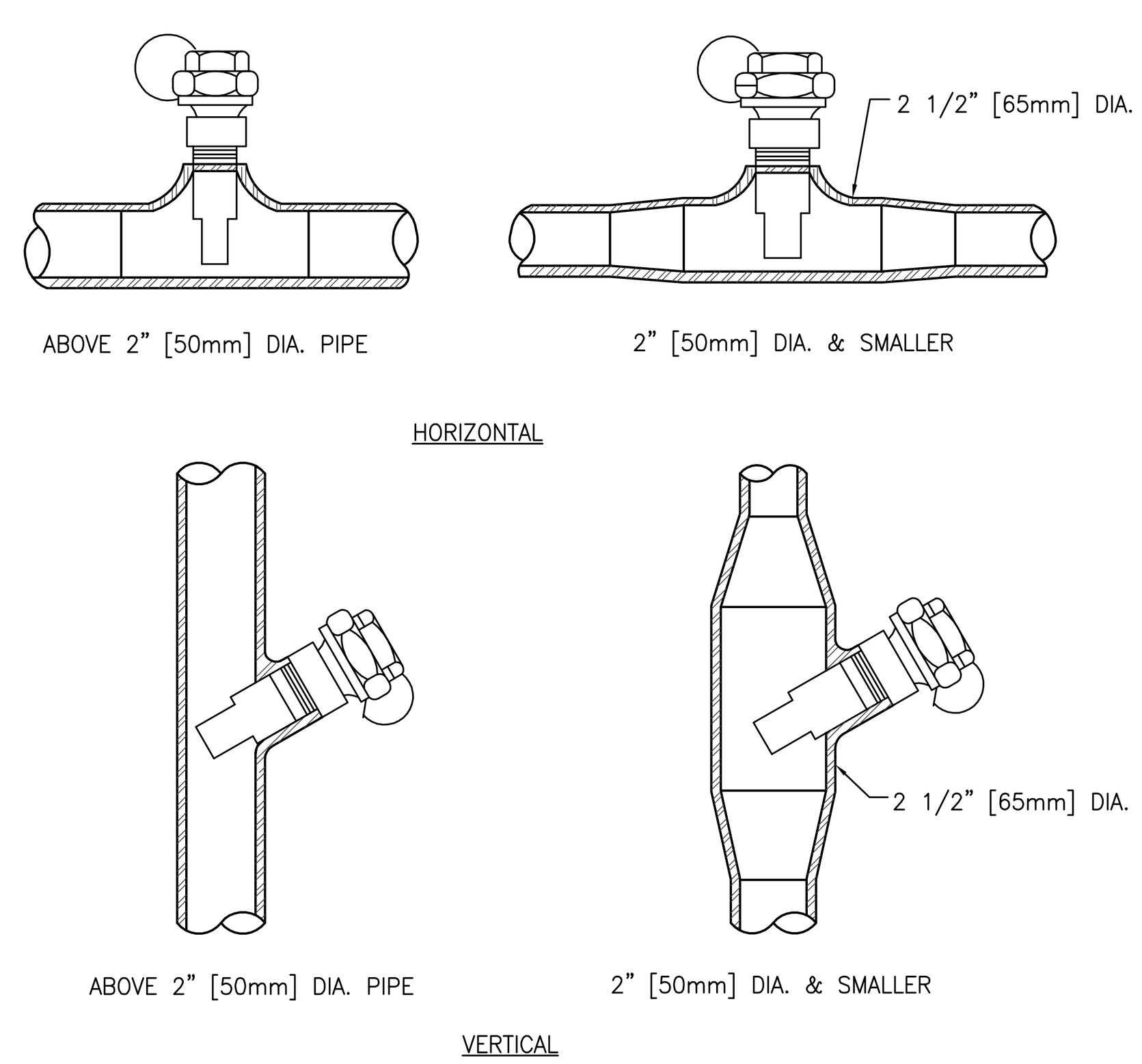
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.



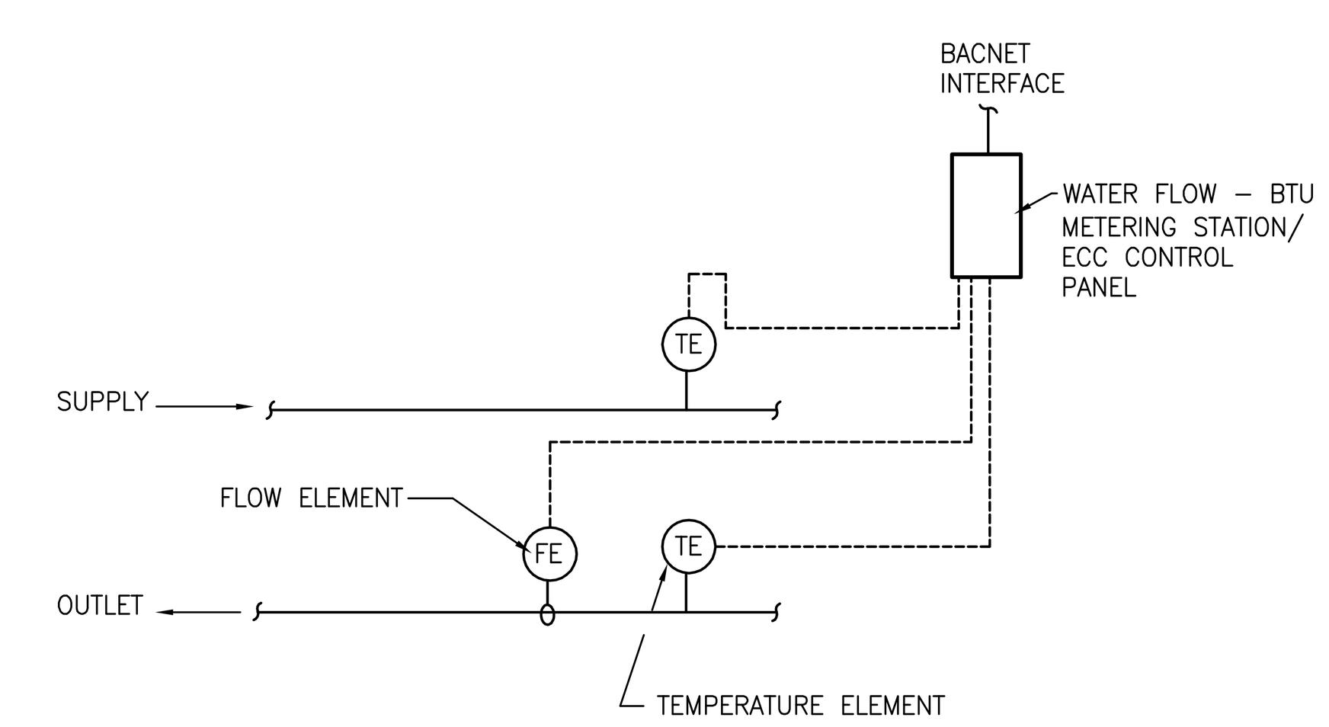
TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

9 DRAIN VALVE AND AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)
NTS



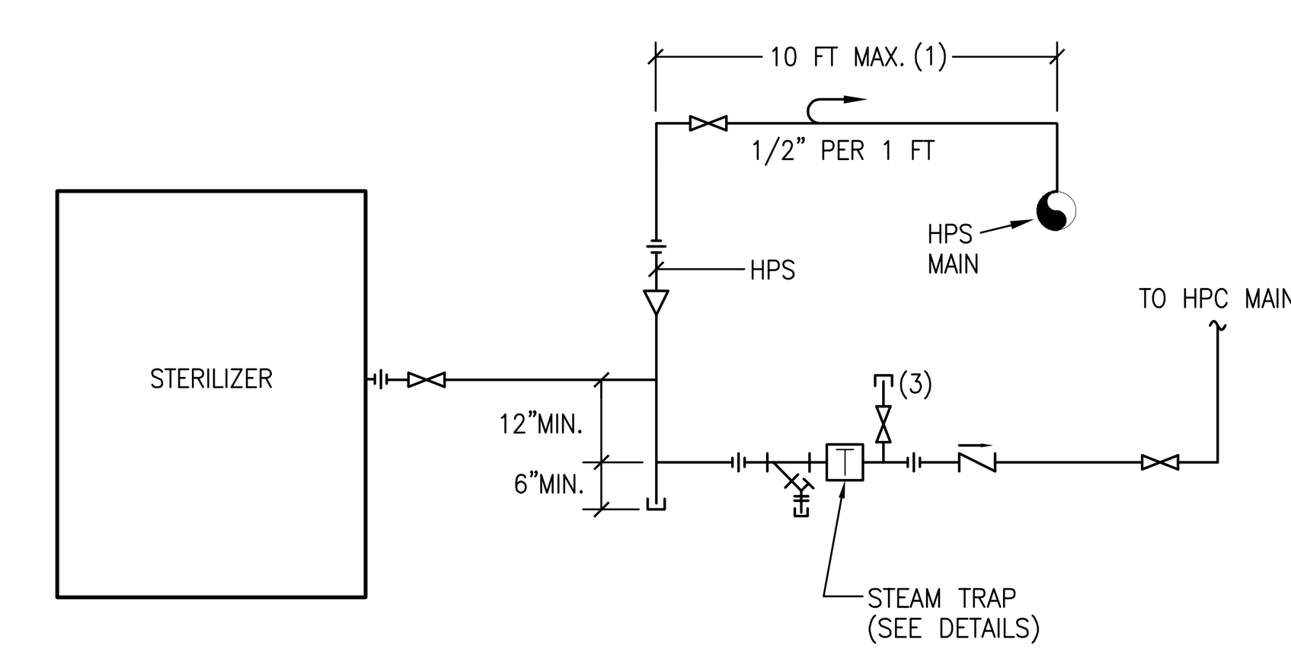
10 INSTALLATION OF THERMOMETER WELLS
NTS



NOTE:

1. MAINTAIN UPSTREAM AND DOWN STREAM DISTANCES RECOMMENDED BY METER MANUFACTURES

11 WATER FLOW MEASURING STATION (WITH BTU METER)
NTS



NOTES:
(1) IF PIPE LENGTH EXCEEDS 10 FT, PROVIDE DRIP POCKET AND TRAP AHEAD OF SHUT–OFF VALVE. (REFER TO MAIN DRIP DETAIL).
(2) COORDINATE ALL FINAL PIPING (HPS, HPC, RELIEF VENT, DRAIN, ETC.) PER EQUIP. MFGR REQS. FOR EXISTING/RELOCATED/REUSED EQUIPMENT.
(3) TEST VALVE WITH 6" NIPPLE AND CAP. TEST VALVE TO BE LINE SIZE, BUT NOT LARGER THAN 1". LOCATE TEST VALVE AT SIDE OF PIPE.
(4) CONFIRM STEAM PRESSURE REQUIRED BY EQUIP. MFGR. TYPICAL PRESSURE RANGE IS 50–80 PSIG. HPS/HPC = 51 PSIG AND ABOVE.

12 CLEAN CORE STERILIZER PIPING
NTS

100% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC PROFESSIONAL ENGINEER
THOMAS L. CHAPMAN, REGISTERED 14634, STATE OF WEST VIRGINIA, PROFESSIONAL ENGINEER — 2/2/16

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Office of Construction and Facilities Management
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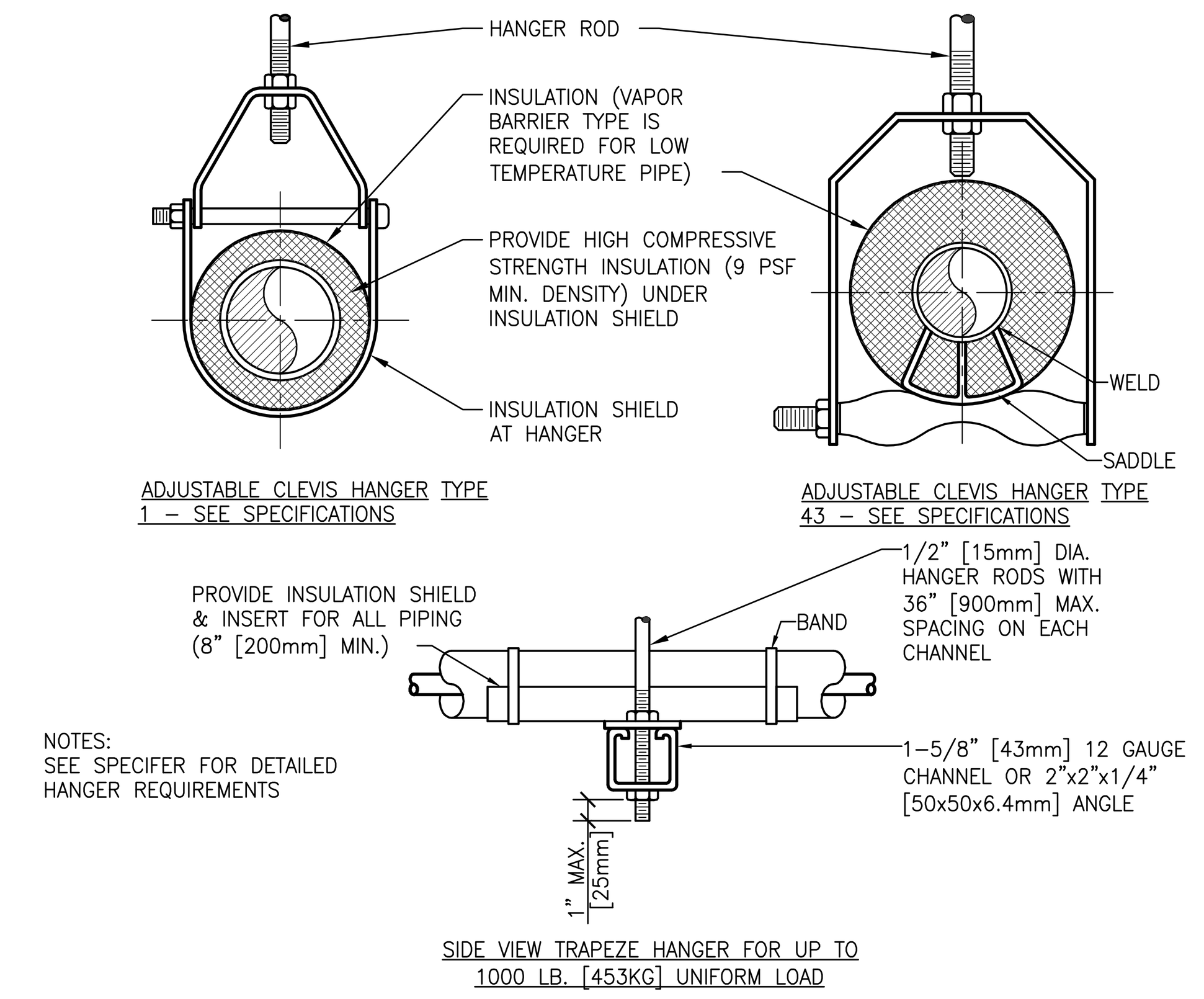
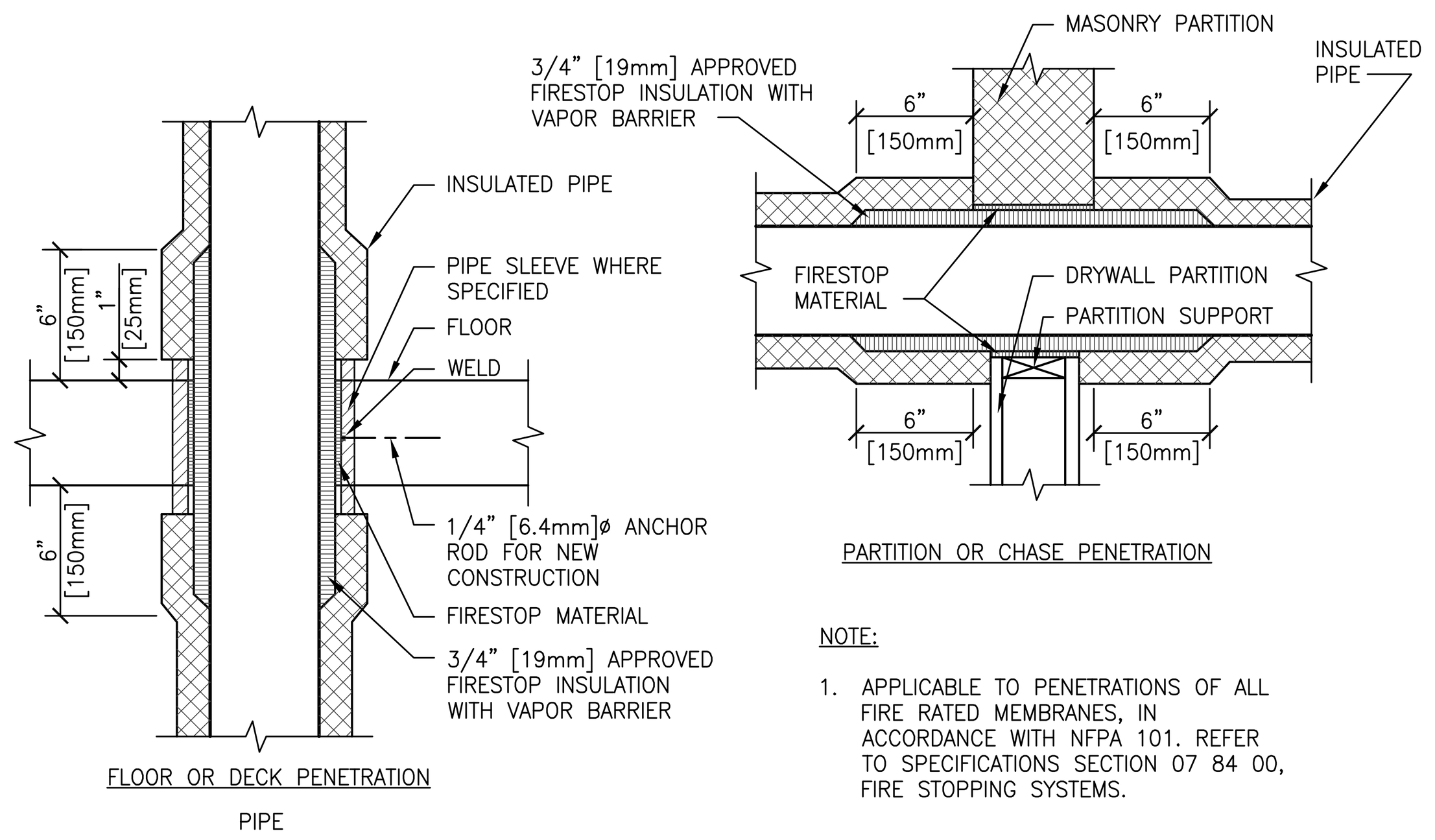


MAXIMUM PIPE/TUBING SUPPORT SPACING

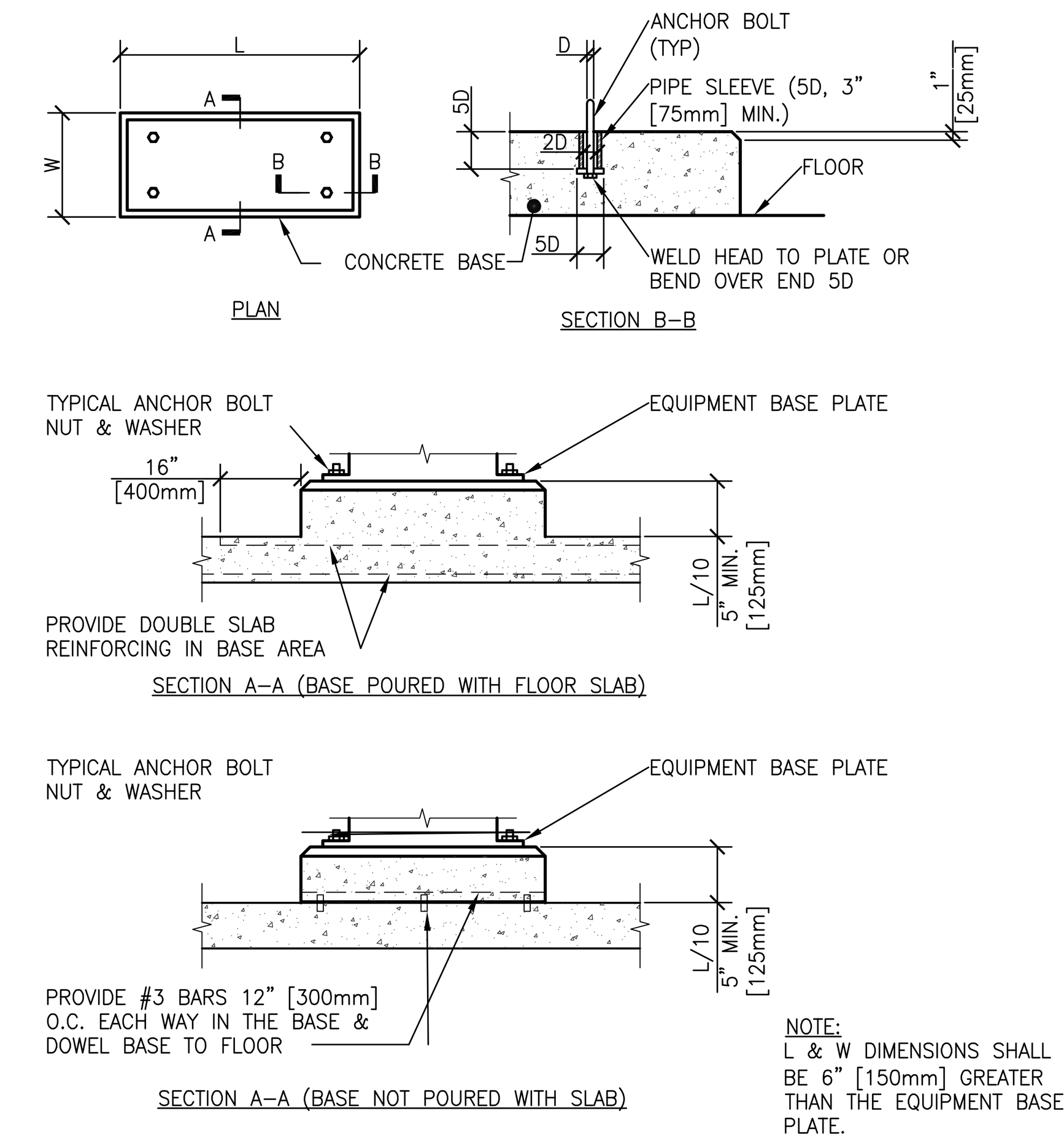
NOM. SIZE	IN. [mm]	THRU 3/4 THRU [20]	1 [25]	1 1/4 [32]	1 1/2 [40]	2 [50]	2 1/2 [65]	3 [75]	4 [100]	5 [125]	6 [150]	8 [200]	10 [250]	12 [300]	14 [350]	16 [400]	18 [450]	20 [500]	24 [600]
PIPE	FT. [mm]	7 [2100]	7 [2100]	7 [2100]	9 [2700]	10 [3000]	11 [3400]	12 [3700]	14 [4100]	16 [4900]	17 [5200]	19 [5800]	22 [6700]	23 [7000]	25 [7600]	27 [8200]	28 [8500]	30 [9100]	32 [9600]
TUBING	FT. [mm]	5 FT [1500]	6 [1800]	7 [2100]	8 [2400]	8 [2400]	9 [2700]	10 [3000]	12 [3700]	13 [4000]	14 [4100]	16 [4900]	–	–	–	–	–	–	–

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

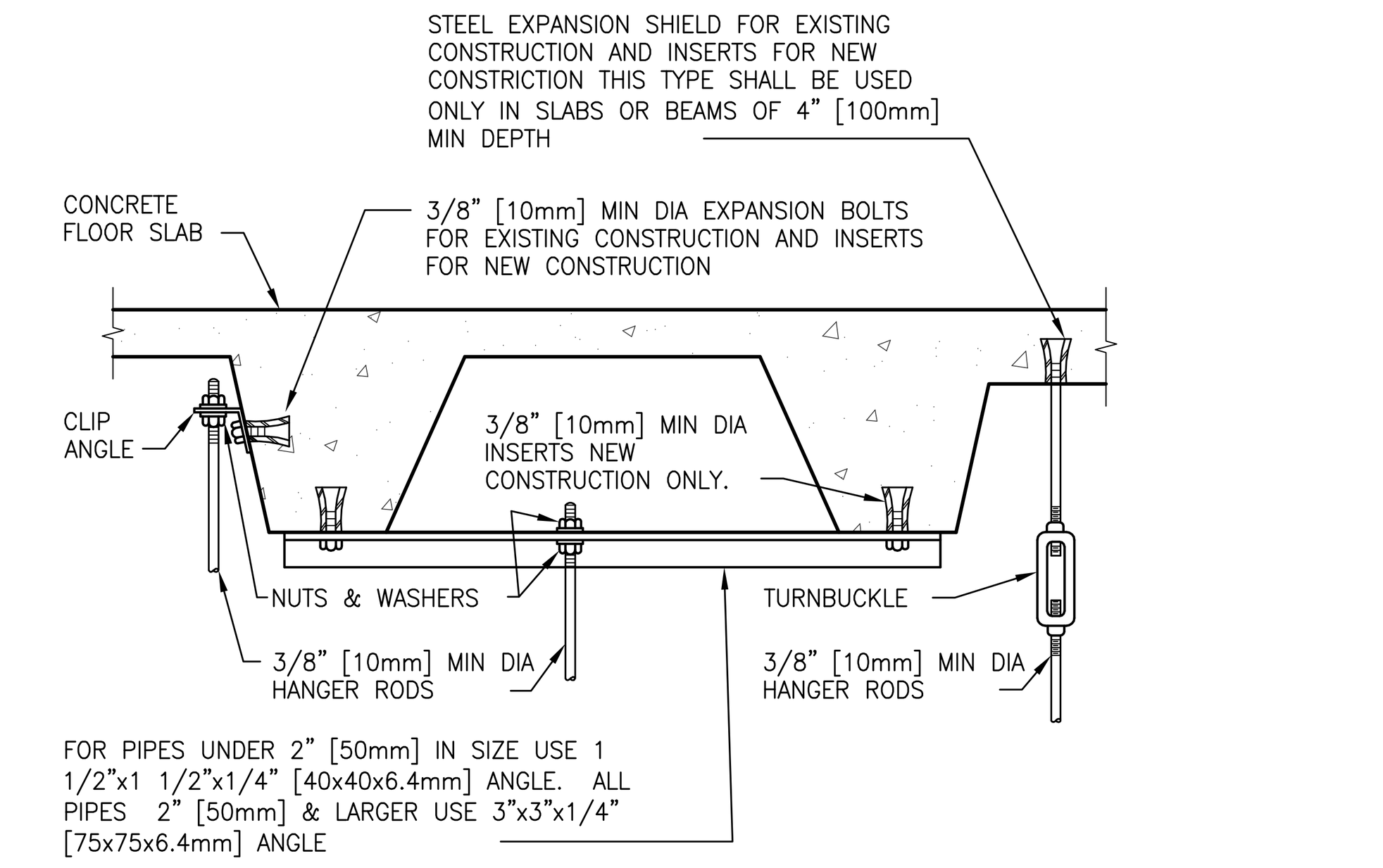
1 PIPE HANGERS
NTS



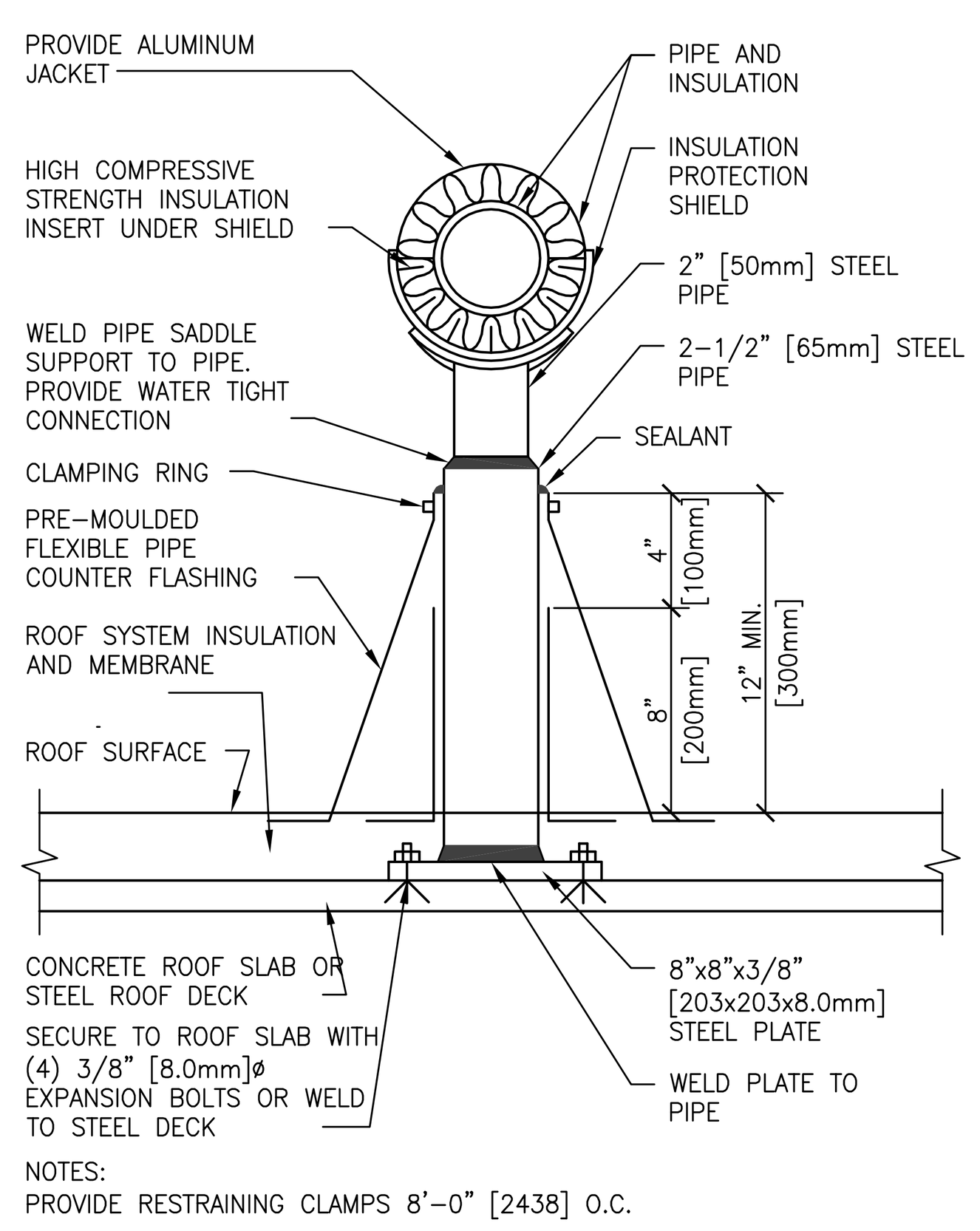
2 PENETRATION OF SMOKE/FIRE BARRIERS
NTS



3 CONCRETE EQUIPMENT BASES
NTS



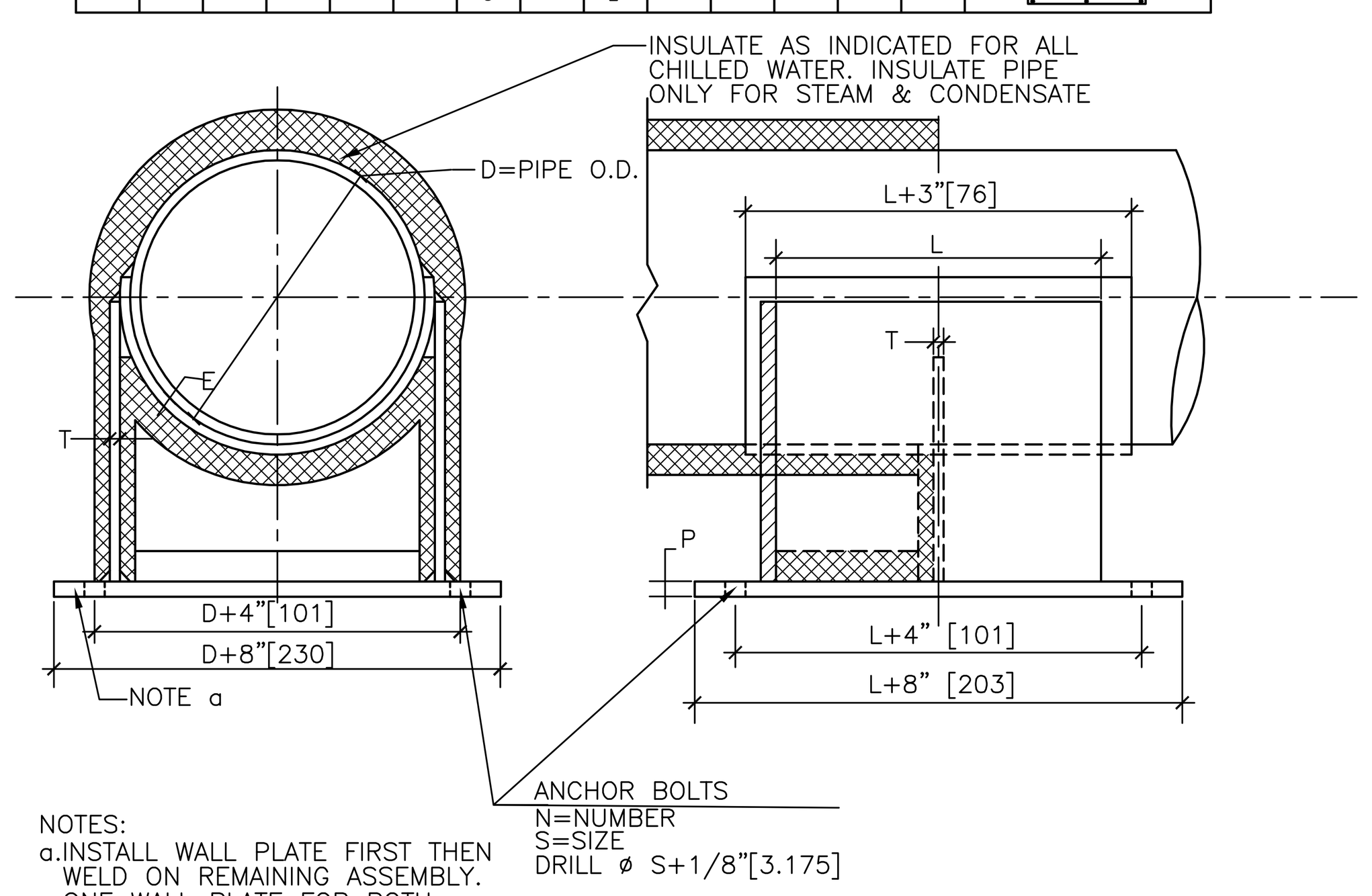
4 SECURING HANGER RODS IN CONCRETE
NTS



5 DETAIL FOR SUPPORTING PIPE ON ROOF
NTS

PIPE ANCHOR SCHEDULE

D IN	D MM	L IN	L MM	P IN	P MM	T IN	T MM	E IN	E MM	N IN	N MM	S IN	S MM	BOLT PATTERN
6"	152	8 1/2"	216	3/4"	19	3/8"	10	1/4"	6	4"	102	7/8"	22	
8"	203	10"	254	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22	
10"	254	12"	305	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22	
12"	305	14"	356	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22	
14"	356	16"	406	3/4"	19	1/2"	13	1/2"	13	4"	102	7/8"	22	
16"	406	18"	457	3/4"	19	1/2"	13	1/2"	13	4"	102	7/8"	22	
18"	457	20"	508	1"	25	5/8"	16	1/2"	13	6"	152	1"	25	

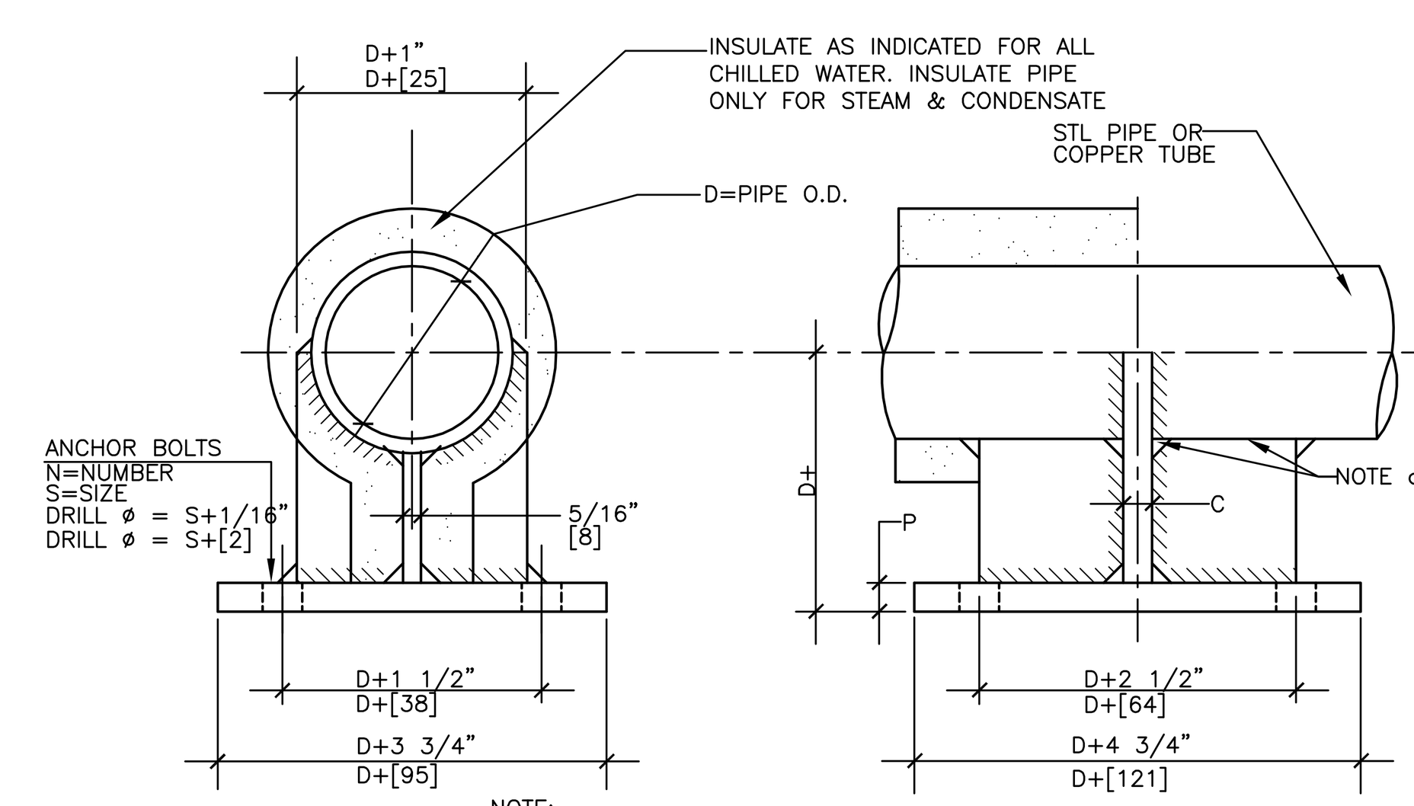


NOTES:
a. INSTALL WALL PLATE FIRST THEN WELD ON REMAINING ASSEMBLY. ONE WALL PLATE FOR BOTH CHILLED WATER S.&R. IS OPTIONAL.

6 LARGE PIPE ANCHOR 6" -18"
NTS

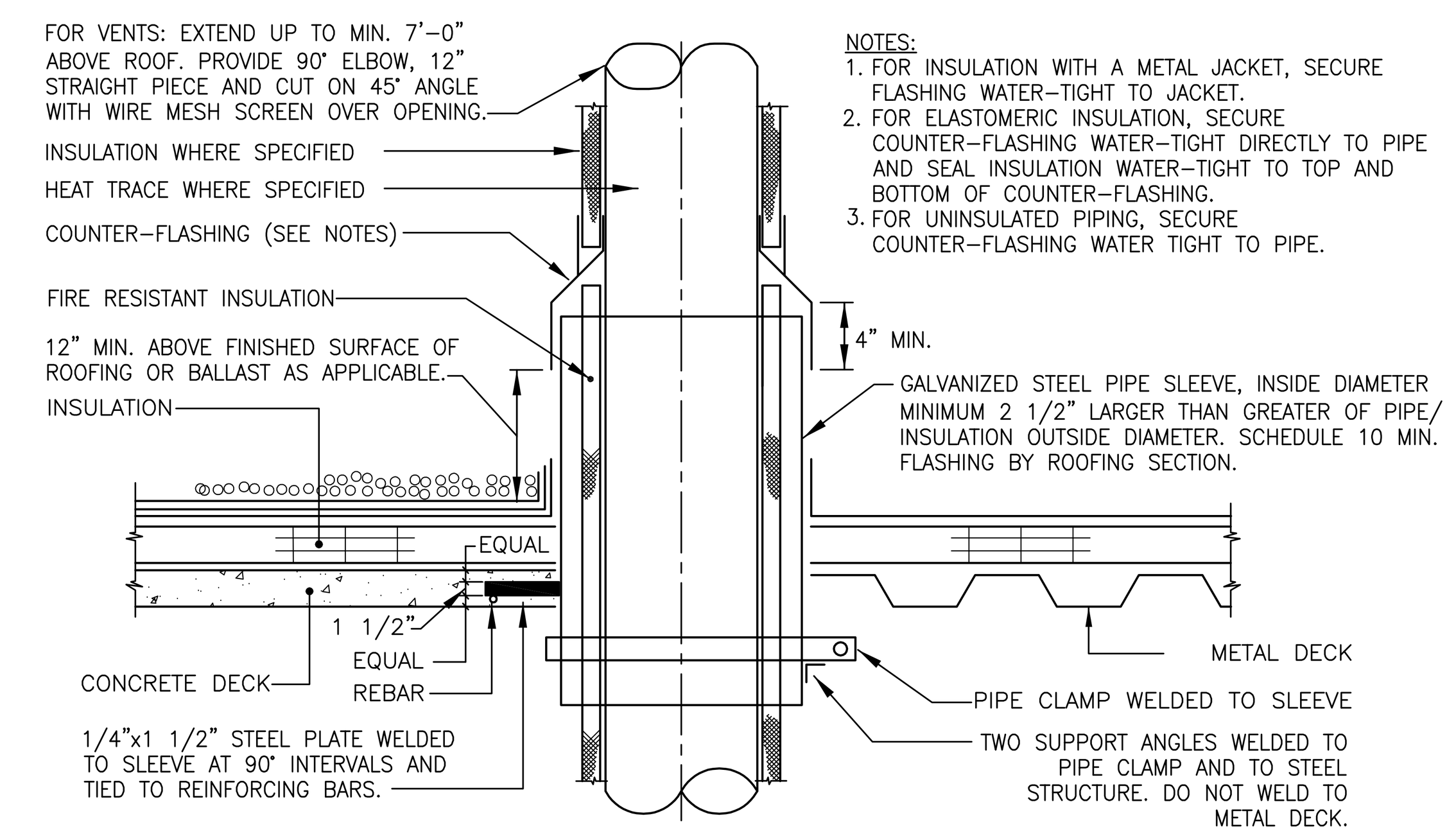
PIPE ANCHOR SCHEDULE

D IN	D MM	P IN	P MM	C IN	C MM	N IN	N MM	S IN	S MM	BOLT PATTERN
4"	102	5/8"	16	3/4"	19	4"	102	3/4"	19	
3"	76	1/2"	13	1/2"	13	4"	102	5/8"	16	
2 1/2"	64	3/8"	10	3/8"	10	4"	102	5/8"	16	
2"	51	3/8"	10	3/8"	10	4"	102	5/8"	16	
1 1/2"	38	3/8"	10	1/4"	6	4"	102	1/2"	13	



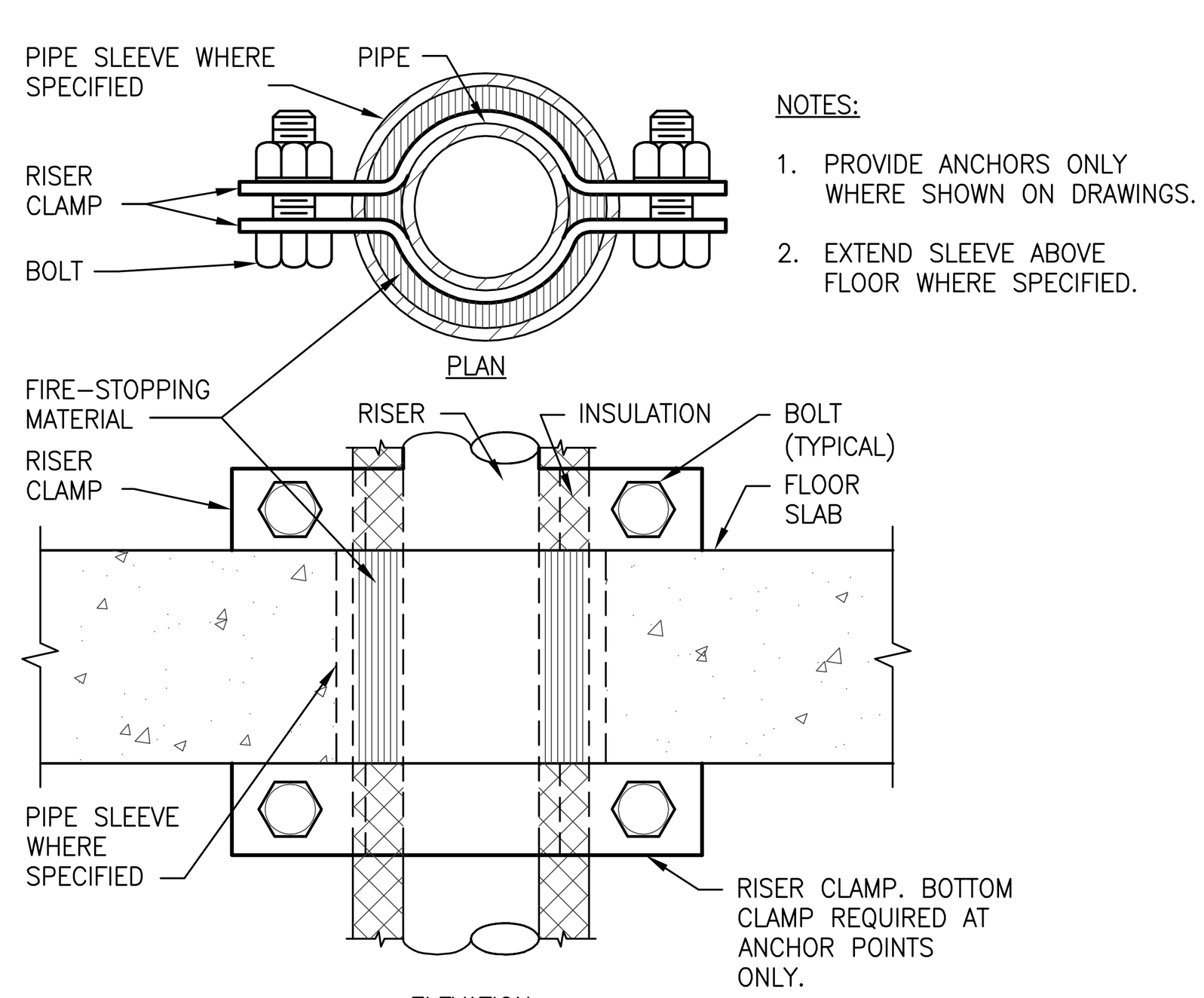
NOTE:
a. WHERE USED FOR COPPER TUBE OR PIPE, BRAZE TO FABRICATED STEEL ANCHOR

7 SMALL PIPE ANCHOR 1 1/2"- 4"
NTS



NOTES:
1. FOR INSULATION WITH A METAL JACKET, SECURE FLASHING WATER-TIGHT TO JACKET.
2. FOR ELASTOMERIC INSULATION, SECURE COUNTER-FLASHING WATER-TIGHT DIRECTLY TO PIPE AND SEAL INSULATION WATER-TIGHT TO TOP AND BOTTOM OF COUNTER-FLASHING.
3. FOR UNINSULATED PIPING, SECURE COUNTER-FLASHING WATER TIGHT TO PIPE.

8 PIPING ROOF PENETRATION
NTS



NOTES:
1. PROVIDE ANCHORS ONLY WHERE SHOWN ON DRAWINGS.
2. EXTEND SLEEVE ABOVE FLOOR WHERE SPECIFIED.

9 SUPPORT/ANCHOR FOR PIPE RISERS
NTS

100% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

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THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

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Drawing Title: **MECHANICAL DETAILS**
Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**
Location: HUNTINGTON, WV
Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: 581-13-101
Building Number: 1S
Drawing Number: M5.05

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231
P:\0499_DVA\1-0499-0025 Huntington WV Renovate Surgical Service and Operating Rooms\2_Drawings\1_Cad\1_Current Submittal Phase\6_MeM5.05 - Details - StmHydrMisc.dwg 2-29-16 01:16:24 PM msmith

ROOFTOP AIR HANDLING UNIT SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	TYPE	SUPPLY CFM	MIN OA CFM	SUPPLY FAN MARK	RETURN FAN MARK	PREFILTER MARK	INTERMEDIATE FILTER MARK	PHOTO-CATALYTIC FILTER	FINAL FILTER MARK	MIN OA AIR FLOW SENSOR	SUPPLY SMOKE DAMPER	RETURN SMOKE DAMPER	PREHEAT COIL MARK	COOLING COIL MARK	HUMIDIFIER MARK	BASIS OF DESIGN OR APPROVED EQUAL	REMARKS
1S-AHU-16	ROOF	SURGERY SUITE	CUSTOM ROOFTOP	21000	4200	1S-SF-16A, 1S-SF-16B, 15-SF-16C, AND 15-SF-16D	1S-RF-16A, 1S-RF-16B, 15-RF-16C, AND 15-RF-16D	1S-PF-16A	1S-PF-16B	1S-UV-16	1S-FF-16	1S-AFMD-16A	1S-SD-1	1S-SD-2	1S-PHC-16	1S-CC-16	1S-HU-16	CLIMATE CRAFT	

NOTE;
1. PROVIDE WITH A SINGLE POINT POWER CONNECTION. UNIT SHALL BE PROVIDED WITH A FACTORY DISCONNECT SWITCH.

FAN SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	AIR FLOW	TSP 7	FAN									MOTOR ELECTRICAL										CONTROL SEQUENCE	FAN BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
						TYPE	WHEEL	CLASS	ARRANGEMENT, ROTATION, AND DISCHARGE	AIRFLOW MEASUREMENT	DIAMETER	MIN % EFF	DRIVE	FAN MAX RPM	NOMINAL HORSEPOWER BHP	NOMINAL HORSEPOWER HP	PHASE	HZ	VOLT	RPM	TYPE	EFFICIENCY	EMERGENCY POWER	SPEED CONTROL			
				CFM	IN						IN																
1S-SF-16A	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - SUPPLY	5250	6.1	PLENUM	AF-PLN	III	ARR 4, __, HOR	PIEZO	16	68%	DIRECT	3100	7.3	10	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	COORD ROTATION FOR SIDE BY SIDE OPERTION IN AHU PLENUM
1S-SF-16B	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - SUPPLY	5250	6.1	PLENUM	AF-PLN	III	ARR 4, __, HOR	PIEZO	16	68%	DIRECT	3100	7.3	10	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	COORD ROTATION FOR SIDE BY SIDE OPERTION IN AHU PLENUM
1S-SF-16C	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - SUPPLY	5250	6.1	PLENUM	AF-PLN	III	ARR 4, __, HOR	PIEZO	16	68%	DIRECT	3100	7.3	10	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	COORD ROTATION FOR SIDE BY SIDE OPERTION IN AHU PLENUM
1S-SF-16D	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - SUPPLY	5250	6.1	PLENUM	AF-PLN	III	ARR 4, __, HOR	PIEZO	16	68%	DIRECT	3100	7.3	10	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	COORD ROTATION FOR SIDE BY SIDE OPERTION IN AHU PLENUM
1S-RF-16A	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - RETURN	5250	2	PLENUM	AF-PLN	II	ARR 4, __, HOR	PIEZO	20	67%	DIRECT	1550	2.6	3	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	
1S-RF-16B	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - RETURN	5250	2	PLENUM	AF-PLN	II	ARR 4, __, HOR	PIEZO	20	67%	DIRECT	1550	2.6	3	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	
1S-RF-16C	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - RETURN	5250	2	PLENUM	AF-PLN	II	ARR 4, __, HOR	PIEZO	20	67%	DIRECT	1550	2.6	3	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	
1S-RF-16D	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AC-16 - RETURN	5250	2	PLENUM	AF-PLN	II	ARR 4, __, HOR	PIEZO	20	67%	DIRECT	1550	2.6	3	3	60	460	1800	TEFC	PREMIUM	Y	VFD	SEE CONTROL DIAGRAMS	TWIN CITY - EPQN - WITH INTEGRAL INLET MOTOR OPERATED DAMPER	
1S-EF-19	BLDG 1S 3RD FLR ROOF	1S-AHU-16 ACCESS CORRIDOR	VENTILATION	800	0.5	PROP WALL	PROP	-	-	-	12	-	DIRECT	1725	0.25	0.25	1	60	115	1725	VARI-GREEN EC	PREMIUM	Y	EC	SEE CONTROL DIAGRAMS	GREENHECK - S1	WITH WALL COLLAR, INLET SCREEN, BACKDRAFT DAMPER
1S-EF-20	BLDG 1S 3RD FLR ROOF	1S 3RD FLR GAS STORAGE ROOM	1S-AC-09 EXHAUST	300	1	CENTR UB	-	-	UPBLAST	-	-	-	DIRECT	-	0.13	0.25	1	60	115	1725	VARI-GREEN EC	PREMIUM	Y	EC	SEE CONTROL DIAGRAMS	GREENHECK - CUE	ROOF FAN, NOT PART OF PEM

NOTES:
1. BASIS OF DESIGN INDICATED FOR REFERENCE OF QUALITY AND PERFORMANCE. SUBMIT EQUIVALENT PRODUCTS AND MANUFACTURERS FOR REVIEW AS REQUIRED BY SPECIFICATIONS.
2. AIRFLOW MEASUREMENT INTEGRAL TO FANS AS SCHEDULED. COORDINATE WIRING AND MONITORING WITH CONTROLS CONTRACTOR.
3. PROVIDE EF-20 WITH ALUMINUM HOUSING, ALUMINUM BIRDSCREEN, CLEAN-OUT PORT, HINGED BASE, MINIMUM 18" HIGH MOUNTING CURB WITH INTEGRAL BACKDRAFT DAMPER, CURB SEAL, VARI-GREEN 24V TRANSFORMER, VAR-GREEN REMOTE SPEED CONTROL DIAL, LOCAL COMBINATION STARTER-DISCONNECT MOUNTED ON UNISTRUT FRAME AT FAN ON ROOF. REFER TO ELECTRICAL DRAWINGS FOR MORE INFO. COORDINATE BAS MONITORING OF FAN STATUS.
4. REFER TO PLANS, DETAILS, SPECIFICATIONS AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION REGARDING SURGERY ADMIN AREA AIR HANDLING UNIT ASSEMBLY.
5. STATIC PRESSURE OF AHU SUPPLY FANS IS TO BE 2.0 INCHES W.G. EXTERNAL PLUS INTERNAL PRESSURE DROP OF UNIT COMPONENTS PLUS 1.5 INCHES FILTER DIRT ALLOWANCE.

CHILLED WATER COOLING COIL SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	APPLICATION	TOTAL AIR FLOW	MAX FACE VELOCITY	APD	EAT		LAT		TOTAL CAPACITY	SENSIBLE CAPACITY	WATER						BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
								Db	Wb	Db	Wb			FLOW	GLY	GLY VOL	EWT	LWT	WPD		
					CFM	FPM	IN WG	°F	°F	°F	°F	MBH	MBH	GPM	TYPE	%	°F	°F	FT		
1S-CC-16	1S-AHU-16	3RD FLR SURGERY SUITE	1S-AHU-16	AHU COOLING / DEHUMIDIFICATION	21,000	450	0.8	76	63	50	49.7	776	581	97	N/A	N/A	42	58	12		STAINLESS STEEL CASING, COPPER FINS

NOTES:
1. COOLING COIL FIN SPACING SHALL NOT EXCEED 132 FINS PER FOOT. COPPER FINS - SEE SPEC.

STEAM HUMIDIFER SCHEDULE

MARK	LOCATION	AREA AND/OR ROOM SERVED	SYSTEM	HUMIDIFIER TYPE	AIR FLOW	# OF MANIFOLDS	OAT		EAT		LAT			SPACE DESIGN		STEAM						CONTROL TYPE	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
							Db	RH	Db	RH	Db	RH	DEWPOINT	Db	RH	SOURCE	PRESS ENT CONTRL VALVE	PRESS ENT HUMIDIFIER	MAX. ABS. DISTANCE	STEAM LOAD	MAX FLOW			
					CFM		°F	%	°F	%	°F	%	°F	°F	%	PLANT / CLEAN	PSIG	PSIG	INCHES	LBS/HR	LBS/HR			
1S-HU-16	ROOF	1S 3RD FLR SURGERY SUITE	1S-AHU-16	DISPERSION	21000	COORD	50	30	50	30	50	63	38	72	30	PLANT	10	5	9	285	285	DDC	DRISTEEM ULTRASORB LV	INSULATED TUBES

NOTES:
1. BASIS OF DESIGN INDICATED FOR REFERENCE OF QUALITY AND PERFORMANCE. SUBMIT EQUIVALENT PRODUCTS AND MANUFACTURERS FOR REVIEW AS REQUIRED BY SPECIFICATIONS. HUMIDIFIER DISPERSION PANEL MUST BE COORDINATED TO FIT WITHIN AHU AIR TUNNEL.
2. HUMIDIFIER MATERIAL OF CONSTRUCTION, SAFING PANELS AROUND PANEL AND ASSOCIATED ELEMENTS EXPOSED TO AHU AIRSTREAM FROM HUMIDIFIER SECTION TO DISCHARGE PLENUM SHALL BE 304 STAINLESS STEEL. MOUNT HUMIDIFIER WITHIN AHU AT APPROPRIATE HEIGHT TO ENSURE PROPER STEAM CONDENSATE TRAPPING.
3. COORDINATE INSTALLATION AND WIRING OF HUMIDIFICATION HIGH LIMIT SWITCH WITHIN 10'-0" OF AHU HUMIDIFIER DISPERSION PANEL IN FIELD. COORDINATE ALL FACTORY & FIELD WIRED AHU CONTROLS IN ACCORDANCE WITH PLANS, DETAILS, SPECIFICATIONS, CONTROL DIAGRAMS AND SEQUENCE OF OPERATION.

STEAM HEATING COIL SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	APPLICATION	TYPE	AIR FLOW	MAX FACE VELOCITY	APD	TEMPERATURES		TOTAL MIN CAPACITY	STEAM			BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
									EAT	LAT		ENT CONT VALVE	ENT COIL	FLOW		
						CFM	FPM	IN WG	°F	°F	MBH	PSIG	PSIG	LBS/HR		
1S-PHC-16	BLDG 1S ROOFTOP 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AHU-16	AHU PREHEAT	DISTRIBUTING	21000	679	0.27	40	50	231	10	5	243		SS COIL CASING, COPPER FINS

NOTES:
1. COIL SHALL BE MOUNTED WITHIN EACH AHU ABOVE FLOOR AS HIGH AS POSSIBLE TO ENSURE PROPER STEAM CONDENSATE TRAPPING. REFER TO DWGS, DETAILS, SPECIFICATIONS AND CONTROLS DIAGRAMS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

100% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

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Drawing Title: **MECHANICAL SCHEDULES**

Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: 581-13-101

Building Number: 1S

Drawing Number: M6.01

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

P:\0499_DVA\1-0499-0025 Huntington WV Renovate Surgical Service and Operating Rooms\2_Drawings\1_Cad\1_Current Submittal Phase\6_MeM6.01 - Schedules.dwg 2-29-16 01:16:05 PM msmith

SINGLE DUCT AIRFLOW CONTROL VALVE SCHEDULE

MARK	LOCATION	AREA AND/OR RM SERVED	PHASE	SYSTEM AIR HANDLING	SIZE (DIMS., DIA.)	AIR FLOW OCC / MAX	AIR FLOW UNOCC / MIN	ADDITIONAL SOUND ATTENUATION REQUIRED	CONTROL TYPE	CONTROL SEQUENCE	DUCT-MOUNTED REHEAT COIL (BASIS OF DESIGN: PRECISION COILS OR APPROVED EQUAL) RHC MARK	RHC AIRFLOW CFM	MBH	HW (GPM)	ENTERING WATER TEMP	LEAVING WATER TEMP	ENTERING AIR TEMP	LEAVING AIR TEMP (MAX 95 DEG F)	MAX. AIR PD	MAX. WATER SIDE PD	COIL DIMENSION WIDTH (IN)	COIL DIMENSION HEIGHT (IN)	MAX FPI	RADIANT PERIMETER CEILING HEAT	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
						CFM	CFM																			
1S-SAV-16-01	3RD FLOOR	OR #1 - RM 3B-135	2	1S-AC-16 / RF-16	12x24	2,500	1,250	SEE SPECS	DDC-7	CV, OCC/UNOC	1-HWC-01	2500	74	5.0	180	150	55	82	0.3	8.2	30	15	8	-	ACCUVALVE	RM PRESSURE MONITORS
1S-RAV-16-01	3RD FLOOR	OR #1 - RM 3B-135	2	1S-AC-16 / RF-16	12x24	2,100	850	SEE SPECS	DDC-7	CV, OCC/UNOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACCUVALVE	RM PRESSURE MONITORS
1S-SAV-16-02	3RD FLOOR	OR #2 (CYSTO) - RM 3B-137	2	1S-AC-16 / RF-16	12x18	2,000	1,000	SEE SPECS	DDC-7	CV, OCC/UNOC	1-HWC-02	2000	59	4.0	180	150	55	82	0.3	5.1	30	15	8	-	ACCUVALVE	RM PRESSURE MONITORS
1S-RAV-16-02	3RD FLOOR	OR #2 (CYSTO) - RM 3B-137	2	1S-AC-16 / RF-16	14	1,600	600	SEE SPECS	DDC-7	CV, OCC/UNOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACCUVALVE	RM PRESSURE MONITORS
1S-SAV-16-003	3RD FLOOR	OR #3 - RM 3B-139	2	1S-AC-16 / RF-16	12x24	2,500	1,250	SEE SPECS	DDC-7	CV, OCC/UNOC	1-HWC-03	2500	74	5.0	180	150	55	82	0.3	8.2	30	15	8	-	ACCUVALVE	RM PRESSURE MONITORS
1S-RAV-16-003	3RD FLOOR	OR #3 - RM 3B-139	2	1S-AC-16 / RF-16	12x24	2,100	850	SEE SPECS	DDC-7	CV, OCC/UNOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACCUVALVE	RM PRESSURE MONITORS
1S-SAV-16-04	3RD FLOOR	OR #4 - RM 3B-141	3	1S-AC-16 / RF-16	12x24	2,500	1,250	SEE SPECS	DDC-7	CV, OCC/UNOC	1-HWC-04	2500	74	5.0	180	150	55	82	0.3	8.2	30	15	8	-	ACCUVALVE	RM PRESSURE MONITORS
1S-RAV-16-04	3RD FLOOR	OR #4 - RM 3B-141	3	1S-AC-16 / RF-16	12x24	2,100	850	SEE SPECS	DDC-7	CV, OCC/UNOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACCUVALVE	RM PRESSURE MONITORS
1S-SAV-08-01	3RD FLOOR	OR#6 - RM 3B-136	4	1S-AC-08 / RF-08	12x36	2,950	1,425	SEE SPECS	DDC-7	CV, OCC/UNOC	1-HWC-05	2950	87	5.8	180	150	55	82	0.3	5.3	30	18	8	-	ACCUVALVE	RM PRESSURE MONITORS
1S-RAV-08-01	3RD FLOOR	OR#6 - RM 3B-136	4	1S-AC-08 / RF-08	12x48	2,550	1,025	SEE SPECS	DDC-7	CV, OCC/UNOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACCUVALVE	RM PRESSURE MONITORS
1S-SAV-16-06	3RD FLOOR	OR SUPPLIES - 3B-135A-141A / VEST-C3-10A	2	1S-AC-16 / RF-16	12	1,150	750	SEE SPECS	DDC-2	CV, OCC/UNOC	1-HWC-06	1150	34	2.0	180	150	55	82	0.3	10.8	18	12	8	-	ACCUVALVE	-
1S-RAV-16-06	3RD FLOOR	OR SUPPLIES - 3B-135A - 141A	2	1S-AC-16 / RF-16	14	1,750	1,350	SEE SPECS	DDC-2	CV, OCC/UNOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACCUVALVE	-
1S-SAV-16-07	3RD FLOOR	SEMI-RESTRICTED CORRIDOR - C3-10	2	1S-AC-16 / RF-16	12x24	2,150	1,100	SEE SPECS	DDC-2	CV, OCC/UNOC	1-HWC-07	2150	64	4.3	180	150	55	82	0.3	5.3	30	15	8	-	ACCUVALVE	-
1S-RAV-16-07	3RD FLOOR	SEMI-RESTRICTED CORRIDOR - C3-10	2	1S-AC-16 / RF-16	12x36	3,050	1,700	SEE SPECS	DDC-2	CV, OCC/UNOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACCUVALVE	-
1S-EAV-16-01	3RD FLOOR	ISOLATION	4	EF-16	10	750	750	SEE SPECS		CV																

NOTES:

1. BASIS OF DESIGN INDICATED FOR REFERENCE OF QUALITY AND PERFORMANCE. SUBMIT EQUIVALENT PRODUCTS AND MANUFACTURERS FOR REVIEW AS REQUIRED BY SPECIFICATIONS. BASIS OF DESIGN INCLUDES INTEGRAL DDC CONTROLLER WITH EIA-485 PORT SUPPORTING BACNET MS/TP INTEGRATION.
2. REFER TO SPECIFICATIONS, CONTROL DIAGRAMS AND CONTROL SEQUENCES OF OPERATION FOR ADDITIONAL REQUIIREMENTS ASSOCIATED WITH THE AIR TERMINAL UNITS AND THEIR INTEGRATION WITH THE BUILDING AUTOMATION SYSTEM (BAS) FOR APPROPRIATE AIRFLOW AND TEMPERATURE CONTROL OF EACH SPACE SERVED.
3. SUPPLY AIR VALVES WITHIN PEM / DOWNSTREAM OF AHU HEPA FILTERS SHALL BE STAINLESS STEEL/MATCH ASSOCIATED SUPPLY AIR DUCTWORK. SUPPLY AIR VALVES OUTSIDE OF PEM AND ALL RETURN/EXHAUST AIR VALVES MAY BE GALVANIZED STEEL OR ALUMINUM CONSTRUCTION.
4. DUCT-MOUNTED REHEAT COILS WITHIN PEM SHALL BE COPPER FINS AND COPPER TUBES AS PER SPECIFICATIONS FOR SURGERY SUITE SERVICE.

UNIT HEATER SCHEDULE

MARK	LOCATION	AREA SERVED	TYPE UNIT	AIR FLOW	EAT	MIN CAPACITY	HEATING WATER EWT	HEATING WATER LWT	HEATING WATER FLOW	STEAM PRESS ENT VALVE	STEAM PRESS ENT HEATER	STEAM FLOW	TRAP	CONTROL SEQUENCE	MOTOR NOMINAL POWER	MOTOR PHASE	MOTOR VOLT	MOTOR EMERGENCY POWER	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
				CFM	°F	BTUH	°F	°F	GPM	PSIG	PSIG	LBS/HR	LBS/HR		HP					
1S-UH-EF-11	3RD FLOOR TEMP GAS STORAGE	TEMPORARY GAS STORAGE RM	HORIZONTAL	900	60	43600	180	160	4.4	-	-	-	-	SEE CONTROL DIAGRAMS	0.05	1	120	Y	TRANE HS-60	ADJACENT TO OA MAKE-UP LOUVER IN TEMP. GAS STORAGE RM
1S-UH-EF-16	1S-AHU-16	SERVICE CORRIDOR	HORIZONTAL	500	60	8300				15	10	9	9	SELF CONTAINED THERMOSTAT	.05	1	120	Y	TRANE A18	

NOTES:

1. BASIS OF DESIGN INDICATED FOR REFERENCE OF QUALITY AND PERFORMANCE. SUBMIT EQUIVALENT PRODUCTS AND MANUFACTURERS FOR REVIEW AS REQUIRED BY SPECIFICATIONS.
2. COORDINATE MOUNTING AND PIPING OF STEAM UNIT HEATERS WITHIN PEM SERVICE ACCESS AREAS. TWO UNITS ON EACH SIDE OF THE CUSTOM AHU (AC-16). MOUNT UNITS HIGH ABOVE PEM ENTRY/PLENUM DOORS WITH AIRFLOW UNOBSTRUCTED AND DISTRIBUTED EVENLY OUT OVER THE SERVICE/ACCESS AREAS.
3. COORDINATE MOUNTING AND PIPING OF TEMPORARY HOT WATER UNIT HEATER WITHIN TEMPORARY GAS STORAGE ROOM IN PHASE 1A. MOUNT UNIT ON WALL ADJACENT TO NEW OA INTAKE MAKE-UP LOUVER/BELOW RELOCATED EXHAUST FAN EF-11 WITH AIRFLOW UNOBSTRUCTED AND DISTRIBUTED EVENLY OUT OVER THE GAS STORAGE RM.

AIR FILTER SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	MERV RATING	AIR FLOW	APD INITIAL	APD CHANGE OVER	HOUSING TYPE	CARTRIDGES #	CARTRIDGES SIZE, DEPTH	CARTRIDGES ARRANGEMENT	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
					CFM	IN	IN			IN			
1S-PF-16A	ROOFTOP, 1S-AHU-16	1S 3RD FLR SURGERY SUITE	1S-AHU-16 - SUPPLY	8	21000	0.10	0.50	HOLDING FRAME	16	24X24X4	4H X 4W	FLANDERS - PREPLEAT 40 LPD	-
1S-PF-16B	ROOFTOP, 1S-AHU-17	1S 3RD FLR SURGERY SUITE	1S-AHU-16 - SUPPLY	14	21000	0.32	0.75	HOLDING FRAME	16	24X24X12	4H X 4W	FLANDERS - SUPERFLOW-V	-
1S-FF-16	ROOFTOP, 1S-AHU-18	1S 3RD FLR SURGERY SUITE	1S-AHU-16 - SUPPLY	17 / HEPA	21000	1.18	2.00	304 SS HOLDING FRAME	16	24X24X12	4H X 4W	FLANDERS - ALPHA 2000 WITH PUREFORM MEDIA	MODEL 0-007-W-08-03-SU-12-00-GGF
1S-PF-11	BLDG 1S 3RD FLR TEMP GAS RM	1S 3RD FLR TEMP GAS STRG	1S-EF-11 - MAKE-UP	8	425	0.03	0.25	SIDE ACCESS GALV HOUSING	2	12X24X4	1H X 2W	FLANDERS SUREPLEAT W/PREPLEAT 40 LPD	MODEL SP-4-05H20W
1S-FF-8	MECH ROOM	1S 3RD FLR SURGERY SUITE	1S-AHU-8	17 /HEPA	12000	1.10	2.00	304 SS HOLDING FRAME	6 3	24x24x12 12X24X12	2HX3W 1HX3W	FLANDERS - ALPHA 2000 WITH PUREFORM MEDIA	
1S-FF-10-1	MECH ROOM	ISOLATION ROOM	1S-TUS-10-08	14	400	0.08	0.12	SIDE ACCESS FILTER BOX	1	24X24	1Hx1W	FLANDERS - SUPERFLOW-V	INCLUDE SIDE ACCESS FILTER BOX

NOTES:

1. BASIS OF DESIGN INDICATED FOR REFERENCE OF QUALITY AND PERFORMANCE. SUBMIT EQUIVALENT PRODUCTS AND MANUFACTURERS FOR REVIEW AS REQUIRED BY SPECIFICATIONS.
2. NEW AC-10 FINAL FILTER (DOWNSTREAM OF AHU SUPPLY FAN/PRIOR TO PATIENT AREAS): 16 GA. GALV. STEEL HOUSING WITH ACCESS DOORS EACH SIDE, PROVIDE INITIAL AND SPARE SET OF FILTER ELEMENTS, PROVIDE DWYER MAGNEHELIC GAGE AND AG-605 KIT FOR FIELD INSTALLATION.
3. MAKE-UP AIR FILTER ASSEMBLY TO BE MOUNTED IN TEMPORARY LOUVER AT BOTTOM OF EXISTING WINDOW OPENING. INCLUDE BAROMETRIC DAMPER WEIGHTED TO OPEN WHEN EF-11 RUNS AND WIREMESH SCREEN AT INLET OPENING TO ROOM. REMOVE/TURN OVER TO OWNER DURING PHASE 4B.
4. REFER TO PLANS, DETAILS, SPECIFICATIONS AND CONTROL DIAGRAMS FOR ADDITIONAL INFORMATION REGARDING SURGERY ADMIN AREA AIR HANDLING UNIT ASSEMBLY.

SOUND ATTENUATING DEVICE SCHEDULE

MARK	LOCATION	SPACE SERVED	TYPE	AIRFLOW	APD	INLET SIZE	LENGTH	DYNAMIC INSERTION LOSS DB OCTAVE BAND AND MID-FREQUENCY [CPS] 63	125	250	500	1000	2000	4000	8000	REMARKS
				CFM	IN WG	IN	IN	1	2	3	4	5	6	7	8	
1S-SAD-16-01	3rd FLOOR	OR #1	RECTANGULAR	2500	0.18	30X15	36	N/A	8	11	12	17	22	17	10	W/ MEDIA FILM COVER, STAINLESS STEEL CONSTRUCTION
1S-SAD-16-02	3rd FLOOR	OR #2	RECTANGULAR	2,000	0.18	30X15	36	N/A	8	11	12	17	22	17	10	W/ MEDIA FILM COVER, STAINLESS STEEL CONSTRUCTION
1S-SAD-16-03	3rd FLOOR	OR #3	RECTANGULAR	2,500	0.18	30X15	36	N/A	8	11	12	17	22	17	10	W/ MEDIA FILM COVER, STAINLESS STEEL CONSTRUCTION
1S-SAD-16-04	1S-SAV-16-04	OR #4	RECTANGULAR	2,500	0.18	30X15	36	N/A	8	11	12	17	22	17	10	W/ MEDIA FILM COVER, STAINLESS STEEL CONSTRUCTION

NOTE:

IN THE INLET SIZE COLUMN, WHEN ONE VALUE IS INDICATED, THE DUCT IS A ROUND DUCT. IF SIZE IS INDICATED AS ##" x ##," THE DUCT IS A RECTANGULAR DUCT WITH SPECIFICATIONS OF "DUCT WIDTH" BY "DUCT DEPTH."

AIR FLOW MEASURING DEVICE SCHEDULE

MARK	LOCATION	SYSTEM AND/OR SERVICE	AIR FLOW MIN	AIR FLOW MAX	DAMPER MODULE SIZE WIDTH	DAMPER MODULE SIZE HEIGHT	APD	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
			CFM	CFM	IN	IN	IN		
1S-AFMD-16A	1S-AHU-16	1S-AHU-16	3000	6000	66	12	0.05	TAMCO-EBTRON AIR-IQ - EBTRON GOLD	AHU OUTDOOR AIR INLET (MIN)

NOTES:

1. COMBINATION AIRFLOW MEASURING DEVICE AND LOW LEAKAGE AIR HANDLING UNIT ISOLATION DAMPERS. PROVIDE MULTIPLE DAMPER SECTIONS/ACTUATORS/FLOW MEASUREMENT AS REQUIRED PER SPECS.
2. DAMPERS SHALL BE INSTALLED ATTACHED TO A DUCT/PLENUM EXTENSION WITH MIN. 8" SET OFF FROM/SIZED FOR FULL FACE AREA OF AHU INTAKE LOUVER. MOUNT/SUPPORT DAMPERS PER MFG. REQS.

100% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC PROFESSIONAL ENGINEER

THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

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Drawing Title: **MECHANICAL SCHEDULES**

Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: 581-13-101

Building Number: 1S

Drawing Number: M6.02

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

P:\0499_DVA\1-0499-0025 Huntington WV Renovate Surgical Service and Operating Rooms\2_Drawings\1_Cad\1_Current Submittal Phase\6_MeM6.02 - Schedules.dwg 2-29-16 01:15:39 PM msmith

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

SINGLE DUCT AIR TERMINAL UNIT SCHEDULE - AC-8/EF-8

MARK	LOCATION	AREA AND/OR RM SERVED	PHASE		APPROX. SIZE (DIA.)	AIR FLOW OCC / MAX CFM	AIR FLOW UNOCC / MIN CFM	ADDITIONAL SOUND ATTENUATION REQUIRED	CONTROL TYPE	CONTROL SEQUENCE	TUS - MOUNTED REHEAT COIL (BASIS OF DESIGN: PRICE SDV OR APPROVED EQUAL) RHC MARK	RHC AIRFLOW	MBH	HW (GPM)	ENTERING WATER TEMP	LEAVING WATER TEMP	ENTERING AIR TEMP	TARGET LEAVING AIR TEMP	MAX. AIR PD	MAX. WATER SIDE PD	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
1S-TUS-08-01	3RD FLR - MECH RM	ANESTESIA	4	1S-AC-08 / EF-08	9	900	450	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-01	850	28.1	1.9	180	150	55	85	0.5	1.5		EXISTING UNIT
1S-TUS-08-02	3RD FLR - MECH RM	IT/ELECT	4	1S-AC-08 / EF-08	9	500	250	SEE SPECS	DDC-5	VAV	1-HWC-08-02	250	4.1	0.3	180	150	55	70	0.5	1.5		EXISTING UNIT
1S-TUS-08-03	3rd FLR - MECH RM	CLEAN CORE	4	1S-AC-08 / EF-08	12	1,430	715	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-03	1,430	39.3	2.6	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-08-04	3rd FLR - MECH RM	FUTURE PAIN MANAGEMENT	4	1S-AC-08 / EF-08	10	500	250	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-04	1,000	27.5	1.8	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-08-05	3rd FLR - MECH RM	LOCKERS	4	1S-AC-08 / EF-08	12	650	325	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-05	650	21.5	1.4	180	150	55	85	0.5	1.5		EXISTING UNIT
1S-TUS-08-06	3rd FLR - MECH RM	FUTURE PAIN MANAGEMENT	4	1S-AC-08 / EF-08	9	500	250	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-06	400	11.0	0.7	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-08-07	3rd FLR - MECH RM	LOUNGE	4	1S-AC-08 / EF-08	14	950	475	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-07	950	26.1	1.7	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-08-08	3rd FLR - MECH RM	ANESTESIA/PAIN MANAGEMENT	4	1S-AC-08 / EF-08	9	650	325	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-08	610	16.8	1.1	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-08-09	3rd FLR - MECH RM	CONTROL	4	1S-AC-08 / EF-08	6	250	125	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-09	250	6.9	0.5	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-08-10	3rd FLR - MECH RM	LOW VOLTAGE	4	1S-AC-08 / EF-08	6	350	175	SEE SPECS	DDC-5	VAV	1-HWC-08-10	100	1.65	0.1	180	150	55	70	0.5	1.5		EXISTING UNIT
1S-TUS-08-11	3rd FLR - MECH RM	SOILED, INFECTIOUS	4	1S-AC-08 / EF-08	6	100	0	SEE SPECS	DDC-1	CV, OCC/UNOC	1-HWC-08-11	100	1.65	0.1	180	150	55	70	0.5	1.5		EXISTING UNIT

NOTES:
1. BASIS OF DESIGN INDICATED FOR REFERENCE OF QUALITY AND PERFORMANCE. SUBMIT EQUIVALENT PRODUCTS AND MANUFACTURERS FOR REVIEW AS REQUIRED BY SPECIFICATIONS.
2. REFER TO SPECIFICATIONS, CONTROL DIAGRAMS AND CONTROL SEQUENCES OF OPERATION FOR ADDITIONAL REQUIIREMENTS ASSOCIATED WITH THE AIR TERMINAL UNITS AND THEIR INTEGRATION WITH THE BUILDING AUTOMATION SYSTEM (BAS) FOR APPROPRIATE AIRFLOW AND TEMPERATURE CONTROL OF EACH SPACE SERVED.

SINGLE DUCT AIR TERMINAL UNIT SCHEDULE - AC-9/RF-9

MARK	LOCATION	AREA AND/OR RM SERVED	PHASE	SYSTEM AIR HANDLING	SIZE (DIA.)	AIR FLOW OCC CFM	AIR FLOW UNOCC CFM	ADDITIONAL SOUND ATTENUATION REQUIRED	CONTROL TYPE	CONTROL SEQUENCE	TUS - MOUNTED REHEAT COIL (BASIS OF DESIGN: PRICE SDV OR APPROVED EQUAL) RHC MARK	RHC AIRFLOW	MBH	HW (GPM)	ENTERING WATER TEMP	LEAVING WATER TEMP	ENTERING AIR TEMP	TARGET LEAVING AIR TEMP	MAX. AIR PD	MAX. WATER SIDE PD	NO. OF ROWS OF COILS	COIL DIMENSION WIDTH (IN)	COIL DIMENSION HEIGHT (IN)	MAX FPI	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
1T-TUR-09-01	3RD FLR	ISOLATION AND ANTE ROOM	3	1S-AC-09 / EF-09	-	600	600	-	CV	-	-	-														EXISTING, REBALANCE TO NEW VALUES SHOWN
1T-TUS-09-01	3RD FLR	ANTE ROOM	3	1S-AC-09 / EF-09	-	100	100	-	CV	-	1-HWC-09-01	100	2.75	0.30	180	160	55	80	-	-	-	-	-	-	-	EXISTING, REBALANCE TO NEW VALUES SHOWN
1T-TUS-09-02	3rd FLR	ISOLATION ROOM	3	1S-AC-09 / EF-09	-	300	300	-	CV	-	1-HWC-09-02	300	11.25	1.25	180	160	55	90	-	-	-	-	-	-	-	EXISTING, REBALANCE TO NEW VALUES SHOWN

NOTES:
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2. REFER TO SPECIFICATIONS, CONTROL DIAGRAMS AND CONTROL SEQUENCES OF OPERATION FOR ADDITIONAL REQUIIREMENTS ASSOCIATED WITH THE AIR TERMINAL UNITS AND THEIR INTEGRATION WITH THE BUILDING AUTOMATION SYSTEM (BAS) FOR APPROPRIATE AIRFLOW AND TEMPERATURE CONTROL OF EACH SPACE SERVED.

SINGLE DUCT AIR TERMINAL UNIT SCHEDULE - AC-10/EF-10

MARK	LOCATION	AREA AND/OR RM SERVED	PHASE	SYSTEM AIR HANDLING	APPROX. SIZE (DIA.)	AIR FLOW OCC CFM	AIR FLOW UNOCC CFM	ADDITIONAL SOUND ATTENUATION REQUIRED	CONTROL TYPE	CONTROL SEQUENCE	TUS - MOUNTED REHEAT COIL (BASIS OF DESIGN: PRICE SDV OR APPROVED EQUAL) RHC MARK	RHC AIRFLOW	MBH	HW (GPM)	ENTERING WATER TEMP	LEAVING WATER TEMP	ENTERING AIR TEMP	TARGET LEAVING AIR TEMP	MAX. AIR PD	MAX. WATER SIDE PD	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
1S-TUS-10-01	3RD FLR - MECH ROOM	OR NURSE MANAGER/IMPLANT COORD.	4	1S-AC-10	6	140	80	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-01	140	3.9	0.3	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-02	3RD FLR - MECH ROOM	PRE-OP	4	1S-AC-10	10	300	150	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-02	300	8.3	0.6	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-03	3rd FLR - MECH ROOM	NURSES STATION	4	1S-AC-10	10	1,350	675	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-03	1350	37.1	2.5	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-04	3rd FLR - MECH ROOM	PRE-OP	4	1S-AC-10	9	280	140	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-04	280	7.7	0.5	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-05	3rd FLR - MECH ROOM	CORRIDOR C3-8	4	1S-AC-10	14	1,150	575	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-05	1150	31.6	2.1	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-06	3rd FLR - MECH ROOM	PRE OP/ CORRIDOR C3-7	4	1S-AC-10	14	1,540	770	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-06	1540	42.4	2.8	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-07	3rd FLR - MECH ROOM	CORRIDOR C3-7.2	4	1S-AC-10	14	1,430	715	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-07	1430	39.3	2.6	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-08	3rd FLR - MECH ROOM	ISOLATION	4	1S-AC-10	7	400	350	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-08	400	11.0	0.7	180	150	55	80	0.5	1.5		EXISTING UNIT
1S-TUS-10-09	3rd FLR - MECH ROOM	PRE OPP	4	1S-AC-10	8	270	160	SEE SPECS	DDC-1	CV OCC/UNOCC	1-HWC-10-09	270	7.4	0.5	180	150	55	80	0.5	1.5		EXISTING UNIT

NOTES:
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2. REFER TO SPECIFICATIONS, CONTROL DIAGRAMS AND CONTROL SEQUENCES OF OPERATION FOR ADDITIONAL REQUIIREMENTS ASSOCIATED WITH THE AIR TERMINAL UNITS AND THEIR INTEGRATION WITH THE BUILDING AUTOMATION SYSTEM (BAS) FOR APPROPRIATE AIRFLOW AND TEMPERATURE CONTROL OF EACH SPACE SERVED.

HVAC SYSTEM PIPING - STEAM/STEAM CONDENSATE AND WATER (REHEAT/CHILLED WATER/DRAINS) - MATERIAL SPECIFICATIONS

(STEAM WORKING PRESSURE: FACTORY TEST AT 1.5 TIMES DESIGN PRESSURE AT DESIGN MAX. TEMPERATURE AS PER SPEC. 23 22 13. STEAM DESIGN PRESSURES - 15 PSIG AND BELOW FOR AHU HEATING AND HUMIDIFICATION. 50-80 PSIG FOR STEAM STERILIZERS/AUTOCLAVES.
(CHILLED WATER WORKING PRESSURE: FACTORY TEST AT 1.5 TIMES DESIGN PRESSURE AT DESIGN MAX. TEMPERATURE AS PER SPEC. 23 21 13. CHILLED WATER WORKING TEMPERATURES: 43 DEG F SUPPLY, 55 DEG F RETURN)
(HEATING HOT WATER WORKING PRESSURE: FACTORY TEST AT 1.5 TIMES DESIGN PRESSURE AT DESIGN MAX. TEMPERATURE AS PER SPEC. 23 21 13. HEATING HOT WATER WORKING TEMPERATURES: 180 DEG F SUPPLY, 160 DEG F RETURN)

PIPE SIZES	PIPE MATERIAL & SPECIFICATION	FITTING & FLANGE MATERIAL & SPECIFICATION	VALVE MATERIAL & SPECIFICATION
3/4" - 6"	STEEL AS PER SPEC 23 22 13	SPEC. 23 22 13	SPEC. 23 22 13
3/4" - 4"	COPPER AS PER SPEC. 23 21 13	SPEC. 23 21 13	SPEC. 23 21 13

PIPING INSULATION SCHEDULE & SPECIFICATIONS

PIPIE/TUBE MATERIAL	PIPIE/TUBE SIZE	SYSTEM	INSULATION, JACKET AND TYPE	INSULATION THICKNESS PER PIPE SIZE ≤0.75	1	1.5	2	2.5	≤3	REMARKS (SEE NOTES, PLANS AND SPEC.
STEEL	3/4" TO 4"	STEAM/STEAM CONDENSATE (HEATING HOT WATER GENERATION, AHU UNIT HEATERS, AHU PREHEAT & HUMIDIFICATION)	MINERAL FIBER WITH TWO INSERT LAYERS FOR PVC PRE-MOLDED FITTING COVERING AS SPEC'D	2.5"	2.5"	3"	3"	3"	3"	ASTM C547, MAX TEMP. 450 DEG F. PROVIDE ALUMINUM JACKET ON EXPOSED PIPING BELOW 6'-0" AFF IN PENTHOUSE EQUIP MODULE AND MECH EQUIP ROOMS.
STEEL	3/4" TO 1 1/2"	STEAM/STEAM CONDENSATE (STERILIZERS/AUTOCLAVES)	MINERAL FIBER WITH TWO INSERT LAYERS FOR PVC PRE-MOLDED FITTING COVERING AS SPEC'D	3"	4"	4.5"	4.5"	4.5"	4.5"	ASTM C547, MAX TEMP. 450 DEG F. PROVIDE ALUMINUM JACKET ON EXPOSED PIPING BELOW 6'-0" AFF IN STERILIZER/AUTOCLAVE EQUIPMENT SERVICE AREA.
STEEL	3/4" TO 6"	AHU CHILLED WATER (INDOOR AND OUTDOOR)	CELLULAR GLASS, ALL-SERVICE VAPOR RETARDER JACKET WITH PVC PRE-MOLDED FITTING COVERING	2"	2"	3"	3"	3"	3"	ASTM C177, C518, MAX TEMP. 400 DEG F. PROVIDE ALUMINUM JACKET W/VAPOR BARRIER ON ALL OUTDOOR PIPING/ON ROOF AND ALL EXPOSED PIPING BELOW 6'-0" AFF WITHIN PENTHOUSE EQUIPMENT MODULE.
COPPER	3/4" TO 4"	AHU CHILLED WATER, AHU DRAINS, PEM FLOOR DRAIN EXTENSIONS THROUGH PEM FLOOR (INDOOR)	CELLULAR GLASS, ALL-SERVICE VAPOR RETARDER JACKET WITH PVC PRE-MOLDED FITTING COVERING	2"	2"	3"	3"	3"	3"	ASTM C177, C518, MAX TEMP. 400 DEG F. PROVIDE ALUMINUM JACKET W/VAPOR BARRIER ON EXPOSED PIPING BELOW 6'-0" AFF IN NEW PEM AND MECH EQUIP ROOMS.
COPPER	3/4" TO 4"	HEATING HOT WATER (REHEAT)	MINERAL FIBER, ALL-SERVICE VAPOR RETARDER JACKET WITH PVC PRE-MOLDED FITTING COVERING	1.5"	1.5"	2"	2"	2"	2"	ASTM C547, MAX TEMP. 450 DEG F. PROVIDE ALUMINUM JACKET ON EXPOSED PIPING BELOW 6'-0" AFF IN PENTHOUSE EQUIP MODULE AND MECH EQUIP ROOMS.

NOTES:
1. CONTRACTOR SHALL INSULATE ALL EXISTING TO REMAIN & NEW PIPING, FITTINGS, VALVES, EQUIPMENT, ETC. REFER TO SPECIFICATIONS FOR INSULATION REQUIREMENTS FOR SYSTEMS BOTH LISTED AND NOT LISTED ABOVE.
2. CONTRACTOR SHALL SUPPORT ALL PIPING IN ACCORDANCE WITH SPEC. SECTION 230511 AND COORDINATE PLACEMENT OF PIPING ON SUPPORTS AS REQUIRED TO PROPERLY INSTALL INSULATION. ALL EXISTING INSULATION IS TO BE REMOVED/REPLACED.
3. CONTRACTOR SHALL INSTALL ALL INSULATION AND JACKETING PER THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE PIPING PAINTING/APPLICATION OF ELECTRIC HEAT TRACE PRIOR TO INSULATING OUTDOOR PIPING AS REQUIRED/SPECIFIED.
4. CONTRACTOR SHALL INSTALL INSULATION PROTECTION SHIELDS AT ALL SUPPORT LOCATIONS, UNLESS NOTED OTHERWISE.
5. ALL INSULATION AND JACKETING MATERIAL SHALL HAVE A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 (ASTM E-84).

100% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC
PROFESSIONAL ENGINEER
THOMAS L. CHAPMAN · REGISTERED · 14634 · STATE OF WEST VIRGINIA · PROFESSIONAL ENGINEER · 2/2/16

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Drawing Title: **MECHANICAL SCHEDULES**

Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: **581-13-101**

Building Number: 1S

Drawing Number: **M6.03**

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

P:\0499_DVA\1-0499-0025 Huntington WV Renovate Surgical Service and Operating Rooms\2_Drawings\1_Cad\1_Current Submittal Phase\6_MeM6.03 - Schedules.dwg 2-29-16 01:15:12 PM msmith

DUCTWORK MATERIAL, CONSTRUCTION AND INSULATION SCHEDULE

SYSTEM NUMBER	SYSTEM DESCRIPTION / LOCATION	DUCTWORK			INSULATION				REMARKS
		MATERIAL	PRESSURE CLASS	SEAL CLASS	TYPE	THICKNESS	MATERIAL	JACKET / FACING	
1S-AC-16	1S-AC-16 DISCH TO INLET SIDE OF SUPPLY AIRFLOW CONTROL VALVES	304 SS	+8"	A, WELDED	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR, NOTE 4
1S-AC-16	SUPPLY AIRFLOW CONTROL VALVE DISCHARGE TO SUPPLY AIR FIRE DAMPER AT PEM FLR	304 SS	+6"	A, WELDED	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR, NOTE 4
1S-AC-16	PEM FIRE DAMPER/EXIT FROM PEM TO SUPPLY AIR DISCHARGE DEVICES IN SURG SUITE	GALV or ALUM	+4"	A, FLANGED	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR - SEE BID ITEMS
1S-RF-16A,B	OUTLET SIDE OF RETURN AIRFLOW CONTROL VALVE TO INLET OF 1S-RF-16A,B	GALV	-4"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR, NOTE 4
1S-RF-16A,B	RETURN INLET DEVICE TO INLET SIDE OF RETURN AIRFLOW CONTROL VALVE	GALV	-3"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR
1S-AC-8, 10	1S-AC-8,10 SUPPLY DISCH TO INLET SIDE OF SUPPLY AIR TERMINAL UNITS	GALV	+4"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR, NOTE 5
1S-AC-8, 10	SUPPLY AIR TERMINAL UNIT/RHC DISCHARGE TO DISCHARGE DEVICES	GALV	+3"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR
1S-EF-8, 10	OUTLET SIDE OF EXHAUST AIR TERMINAL UNIT TO INLET OF 1S-EF-08, 10	GALV	-4"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR, NOTE 5
1S-EF-8, 10	EXHAUST INLET DEVICE TO INLET SIDE OF EXHAUST AIR TERMINAL UNIT	GALV	-3"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR
1S-AC-9	1S-AC-9 SUPPLY DISCHARGE DUCTWORK UP TO/ACROSS ROOF OF MECH EQUIP ROOM	GALV	+4"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	OUTDOOR, NOTE 6
1S-AC-9	1S-AC-9 SUPPLY FROM ROOF DUCT DROP TO INLET SIDE OF SUPPLY AIR TERMINAL UNITS	GALV	+4"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR, NOTE 5
1S-AC-9	SUPPLY AIR TERMINAL UNIT/RHC DISCHARGE TO DISCHARGE DEVICES	GALV	+3"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR
1S-RF-9	1S-RF-9 RETURN FAN MAIN DUCTWORK UP TO/ACROSS ROOF OF MECH EQUIP ROOM	GALV	-4"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	OUTDOOR, NOTE 6
1S-RF-9	OUTLET SIDE OF RETURN AIR TERMINAL UNIT UP TO ROOF PENETRATION	GALV	-4"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR, NOTE 5
1S-RF-9	RETURN INLET DEVICE TO INLET SIDE OF RETURN AIR TERMINAL UNIT	GALV	-3"	A	FLEXIBLE BLANKET	SPEC	MINERAL FIBER	FSK	INDOOR
1S-EF-16	OUTLET SIDE OF EXHAUST AIRFLOW CONTROL VALVE TO 1S-EF-16 SHAFT/RISER	GALV	-4"	A	-	-	-	-	-
1S-EF-16	EXHAUST INLET DEVICE TO INLET SIDE OF EXHAUST AIRFLOW CONTROL VALVE	GALV	-3"	A	-	-	-	-	-
1S-EF-18	2ND FLR FUME HOOD EXHAUST DUCT OFFSET THROUGH 3RD FLOOR, SLAB TO SLAB	304 SS	-4	A, WELDED	RATED OFFSET-SPEC	SPEC	SPEC	SPEC	RATED CHASE/DUCT WRAP
1S-EF-19	OUTLET SIDE OF EXHAUST AIR TERMINAL UNIT TO INLET OF 1S-EF-19	GALV	-3"	A	NOTE 3	SPEC	MINERAL FIBER	FSK	INDOOR
1S-EF-19	EXHAUST INLET DEVICE TO INLET SIDE OF EXHAUST AIR TERMINAL UNIT	GALV	-2"	A	-	-	-	-	-
1S-EF-20	EXHAUST INLET DEVICE TO INLET OF 1S-EF-20	GALV	-2"	A	NOTE 3	SPEC	MINERAL FIBER	FSK	INDOOR

NOTES:

1. REFER TO HVAC DUCTS AND CASINGS SPECIFICATION SECTION 23 31 00 FOR ADDITIONAL REQUIREMENTS.
2. REFER TO HVAC DUCT INSULATION SPECIFICATION SECTION 23 07 11 FOR ADDITIONAL REQUIREMENTS.
3. EXHAUST SYSTEMS INCLUDING ENERGY RECOVERY SHALL INCLUDE EXTERNAL INSULATION. EXHAUST DUCTWORK 5'-0" PRIOR TO EXITING BUILDING/CONNECTING TO ROOFTOP EXHAUST FANS SHALL BE EXTERNALLY INSULATED.
4. FOR SUPPLY AND RETURN DUCTWORK WITHIN PENTHOUSE EQUIPMENT MODULE, PROVIDE MINERAL FIBER BOARD WITH ASJ FOR DUCTWORK 6'-0" AFF AND BELOW. SEE SPECS FOR ADDITIONAL REQUIREMENTS.
5. FOR SUPPLY, RETURN AND EXHAUST DUCTWORK WITHIN 2ND/3RD FLOOR MECHANICAL EQUIPMENT ROOMS, PROVIDE MINERAL FIBER BOARD WITH ASJ FOR DUCTWORK 6'-0" AFF AND BELOW. SEE SPECS FOR ADDITIONAL REQUIREMENTS.
6. DUCTWORK SHALL INCLUDE WATER-TIGHT/WEATHER PROOF INSULATION / DUCTWORK LAGGING SYSTEM WITH TAPERED TOP, ETC.. REFER TO DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

AIR DEVICE SCHEDULE (RETURN AND EXHAUST)

MARK	TYPE	AIR FLOW		MAX APD	MOUNTING	PANEL/FRAME SIZE	NECK SIZE	NC	DAMPER	FINISH	BASIS OF DESIGN OR APPROVED EQUAL	REMARKS
		MIN	MAX									
		CFM	CFM	IN WG		IN x IN	IN x IN					
RR-1	PERFORATED RETURN REGISTER	0	100	0.06	CEILING	24x24	6x6	25	NONE	WHITE	TITUS / PAR-AA	
	PERFORATED RETURN REGISTER	101	275	0.06	CEILING	24x24	10x10	25	NONE	WHITE	TITUS / PAR-AA	
	PERFORATED RETURN REGISTER	276	400	0.06	CEILING	24x24	12x12	25	NONE	WHITE	TITUS / PAR-AA	
	PERFORATED RETURN REGISTER	401	900	0.06	CEILING	24x24	18x18	25	NONE	WHITE	TITUS / PAR-AA	
	PERFORATED RETURN REGISTER	901	1700	0.10	CEILING	24x24	22x22	30	NONE	WHITE	TITUS / PAR-AA	
RR-2	PARALLEL BLADE RETURN	0	800	0.05	SIDE WALL	-	18x14	25	NONE	WHITE	TITUS 350FS	
	PARALLEL BLADE RETURN	801	1400	0.05	SIDE WALL	-	18x18	25	NONE	WHITE	TITUS 350FS	
RR-3	PARALLEL BLADE RETURN	-	-	0.08	SIDE WALL	-	24x14	25	NONE	WHITE	TITUS 350 ZFS	
ER-1	1S-RAV-16-04	0	100	0.06	CEILING	24x24	6x6	25	NONE	WHITE	TITUS / PAR-AA	
	PERFORATED EXHAUST REGISTER	101	275	0.06	CEILING	24x24	10x10	25	NONE	WHITE	TITUS / PAR-AA	
	PERFORATED EXHAUST REGISTER	276	400	0.06	CEILING	24x24	12x12	25	NONE	WHITE	TITUS / PAR-AA	
	PERFORATED EXHAUST REGISTER	401	900	0.06	CEILING	24x24	18x18	25	NONE	WHITE	TITUS / PAR-AA	

NOTE

1. PROVIDE SQUARE TO ROUND ADAPTER.
2. ADJUST AIR DEVICE SIZE OR DESIGNATION WHERE AIR FLOW INDICATED ON THE DRAWINGS EXCEEDS SCHEDULED FLOW RANGE, MAX. P.D. OR MAX. N.C.
3. PROVIDE PLASTER FRAMES FOR ALL AIR DEVICES MOUNTED IN PLASTER CEILING. SEE ARCHITECTURAL REFLECTED CEILING PLANS.
4. PROVIDE 24x24 DROP PANEL FOR LAY-IN CEILING.
5. ALL SIZES INDICATED FOR T-BAR CEILINGS ARE NOMINAL- EXACT SIZE TO BE LESS TO ALLOW DEVICES TO LAY IN CEILING.
6. NECK SIZES AS SCHEDULED UNLESS NOTED OTHERWISE.

AIR DEVICE SCHEDULE (SUPPLY)

MARK	TYPE	AIR FLOW		MAX APD	MOUNTING	PANEL FRAME SIZE	NECK SIZE	DUCT SIZE	NC	DAMPER	FINISH	BASIS OF DESIGN OR APPROVED EQUAL	REMARKS
		MIN	MAX			IN x IN	IN	IN x IN					
		CFM	CFM	IN WG									
CD-1	SUPPLY DIFFUSER	0	100	0.100	CEILING	24x24	6		25	NONE	WHITE	TITUS / TDCA-AA	
	SUPPLY DIFFUSER	101	200	0.100	CEILING	24x24	8		25	NONE	WHITE	TITUS / TDCA-AA	
	SUPPLY DIFFUSER	201	325	0.100	CEILING	24x24	10		25	NONE	WHITE	TITUS / TDCA-AA	
	SUPPLY DIFFUSER	326	500	0.100	CEILING	24x24	12		25	NONE	WHITE	TITUS / TDCA-AA	
CD-2	SUPPLY DIFFUSER	20	100	0.060	CEILING	12x12	4	4	20	NONE	WHITE	TITUS TMS	LOUVERED FACE
	SUPPLY DIFFUSER	105	160	0.070	CEILING	12x12	6	6	20	NONE	WHITE	TITUS TMS	LOUVERED FACE
SD-1	SUPPLY GRILL	545	675	0.110	SIDE WALL	18x10	N/A	10x8	23	NONE	WHITE	TITUS 300FL	45 DEG. DOUBLE DEFLECTION
LFD-1	LAMINAR AIR FLOW DIFFUSER	0	60	0.100	CEILING	24x12	6		38	YES	WHITE	PRECISION AIR PRODUCTS / PAT-A	
LFD-2	LAMINAR AIR FLOW DIFFUSER	61	120	0.100	CEILING	24x24	8		38	YES	WHITE	PRECISION AIR PRODUCTS / PAT-A	
LFD-3	LAMINAR AIR FLOW DIFFUSER	121	230	0.100	CEILING	36x24	8		38	YES	WHITE	PRECISION AIR PRODUCTS / PAT-A	
LFD-4	LAMINAR AIR FLOW DIFFUSER	231	280	0.100	CEILING	48x24	8		38	YES	WHITE	PRECISION AIR PRODUCTS / PAT-A	

NOTES

1. SEE FLOOR PLAN FOR THROW PATTERN.
2. SEE DETAIL FOR DAMPER IN BRANCH DUCT SERVING EACH DIFFUSER.
3. PROVIDE SQUARE TO ROUND ADAPTER.
4. INSTALL ALL AIR DEVICES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. MAX NC RATING BASED ON 10dB ROOM ABSORBTION.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPE.
7. THROW VALUE IN FEET FOR 100 FPM TERMINAL VELOCITY.
8. PROVIDE FLEXIBLE DUCT WHERE SHOWN ON DRAWINGS AT DIFFUSER NECK SIZE,
9. NECK SIZES AS SCHEDULED UNLESS NOTED OTHERWISE.

UV STERILIZATION (SECTION 23400, AIR PURIFICATION SYSTEM)

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	AIR FLOW	MAXIMUM FACE VELOCITY	TYPE	ELECTRICAL VOLTS/PHASE	APD		BASIS OF DESIGN
								INITIAL IN	CHANGEOVER IN	
1S-UV-16	ROOF	THIRD FLOOR SURGERY SUITE	1S-AHU-16	21000	450	PHOTOCATALYTIC OXIDATION	120/1	0.06	0.06	GENESIS

NOTES:

1. PROVIDE DOOR SWITCHES TO LOCK OUT UNIT OPERATION.

100% CONSTRUCTION DOCUMENTS

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NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

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Drawing Title: **MECHANICAL SCHEDULES**

Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: **581-13-101**

Building Number: 1S

Drawing Number: **M6.04**

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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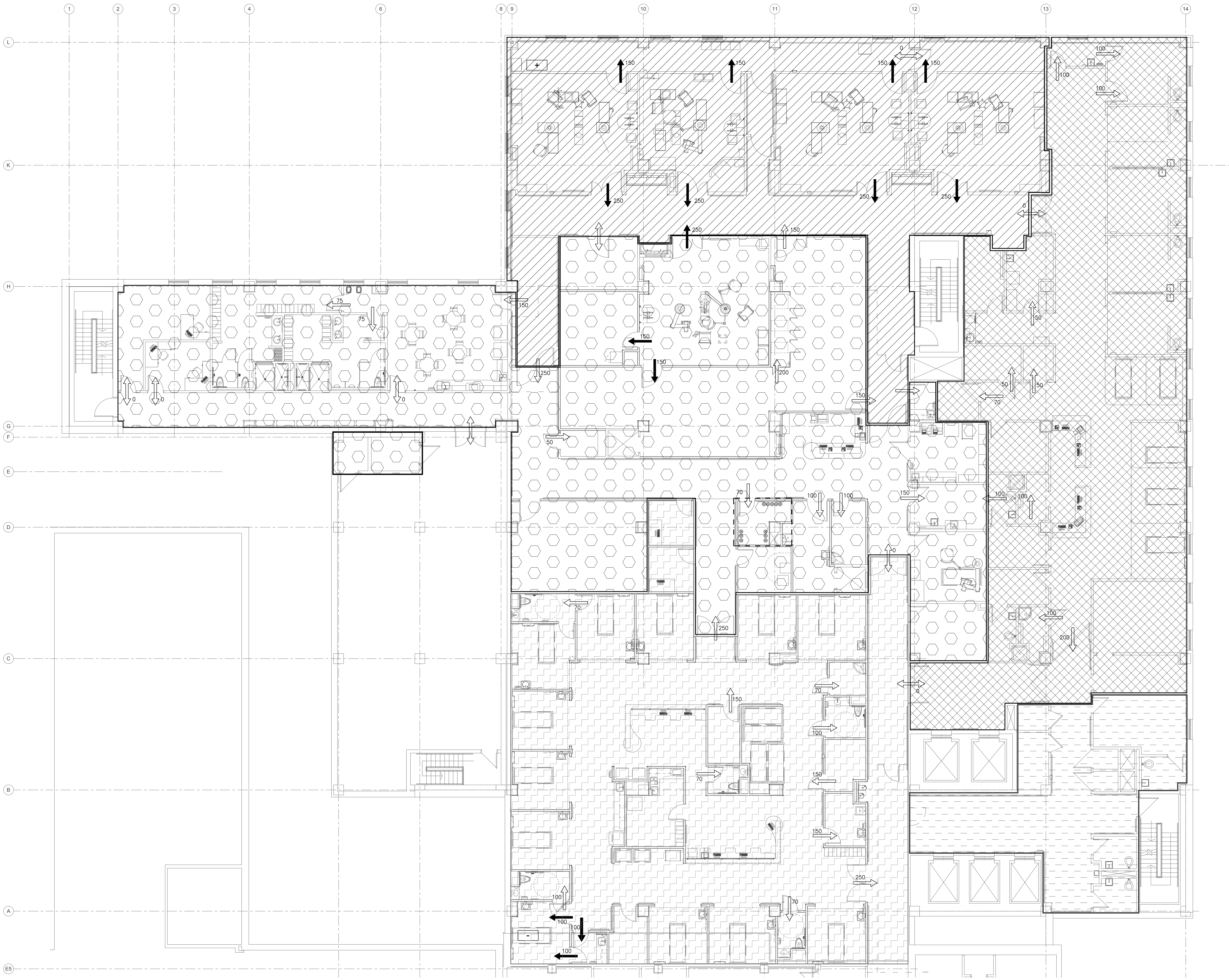


HVAC EQUIPMENT ZONING

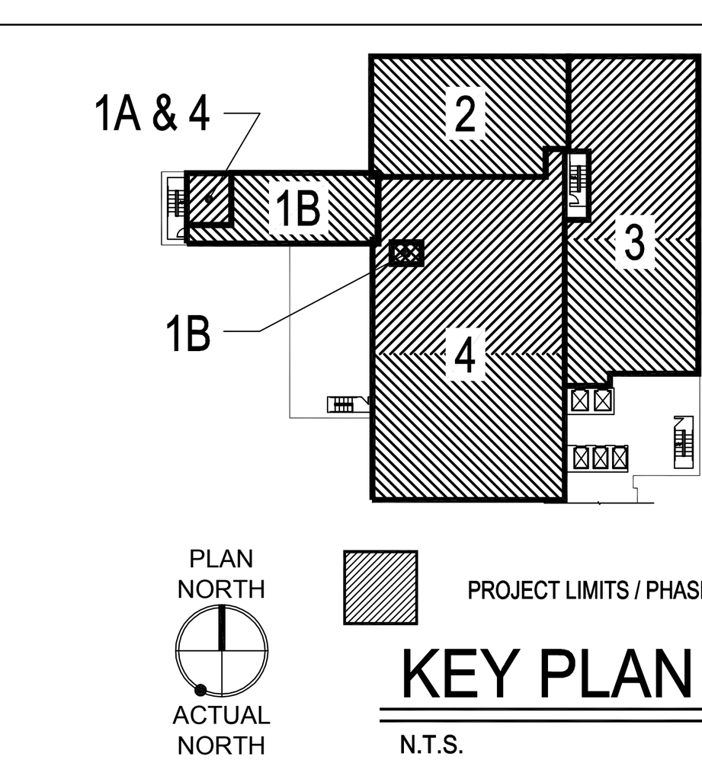
- NEW SURGERY 1S-AC-16 / 1S- RF-16
- (E)1S-AC-8 / 1S-EF-8 NEW PACU/ RECOVERY
- (E)1S-AC-9 / 1S-RF-9 NEW ADMIN / SURG SUPPORT/ CIRCULATION
- (E)1S-AC-10 / 1S-EF-10 NEW PRE-OP / SURG PREP
- (E)1A-AC-3 / 1A-RF-3 / 1A-EF-5 - EXISTING FAMILY WAITING / ELEVATOR LOBBY
- EF-8 (SERVING AC-9 SURGICAL SUPPORT)
- EF-19, GAS STORAGE
- EF-20, LOUNGE / LOCKER ROOMS

PRESSURIZATION

- CRITICAL DIRECTIONAL AIRFLOW: - DIFFERENTIAL PRESSURE MONITORED/ALARMED
- AIR FLOW DIRECTION: - FOR GOOD ENGINEERING PRACTICE / AS PER VAMC DESIGN GUIDELINES
- AIR FLOW DIRECTION: - NEUTRAL
- O — RELATIVE ROOM PRESSURE - NEUTRAL TO REFERENCE/SLIGHTLY POSITIVE TO OUTDOORS
- \+ — RELATIVE ROOM PRESSURE - POSITIVE TO REFERENCE
- \- — RELATIVE ROOM PRESSURE - NEGATIVE TO REFERENCE
- DPSE — ROOM DIFFERENTIAL PRESSURE MONITORING PANEL WITH LOCAL ALARM KEY-SWITCH OVERRIDE
- DPSE SUMMARY — ROOM DIFFERENTIAL PRESSURE MONITORING SUMMARY PANEL LOCATED AT NURSE STATION
- OCC — MULTI-TECHNOLOGY ROOM OCCUPANCY SENSOR FOR OCCUPIED/UNOCCUPIED CONTROL
- • — SECURED UNOCCUPIED MODE OVER-RIDE PUSH-BUTTON - TO ENGAGE HVAC OCCUPIED MODE TEMPORARILY - SEE CONTROLS DIAGRAMS
- BAS — POTENTIAL NEW BAS PANEL LOCATIONS. COORDINATE WITH ALL TRADES, THE VAMC AND ACTUAL AVAILABLE SPACE IN THE FIELD PER PROJECT PHASE.

NOTES:

1. AIR QUANTITIES (CFM) INDICATED ARE DESIGN TARGET VALUES ONLY. TESTING, ADJUSTING AND BALANCING CONTRACTOR SHALL BALANCE ALL AIR SYSTEMS AND THEIR ASSOCIATED SUPPLY, RETURN AND EXHAUST FANS TO MEET ROOM PRESSURIZATION LEVELS AND DIRECTIONAL TRANSFER AIR FLOW / OFFSETS AS INDICATED.
2. DRAWING REPRESENTS FINAL CONDITION AFTER ALL PROJECT PHASES COMPLETE. DESIGN INTENT FOR EACH SPACE TYPE'S DIRECTIONAL AIRFLOW AND ROOM PRESSURE SHALL BE MAINTAINED FOR EACH PHASE.



PROJECT LIMITS / PHASE

KEY PLAN

N.T.S.

100% CONSTRUCTION DOCUMENTS

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NO.	DESCRIPTION	DATE

CONSULTANTS:

MILLER-REMICK LLC PROFESSIONAL ENGINEER

THOMAS L. CHAPMAN REGISTERED 14634 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 2/2/16

ARCHITECT / ENGINEERS:

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PF&A DESIGN ARCHITECTURE, PLANNING, INTERIORS World Trade Center 101 West Main Street, Suite 7000 Norfolk, VA 23510 Phone: 757-471-0537 Fax: 757-471-4205 www.pfa-architect.com

Drawing Title: **MECHANICAL - 3RD FLOOR AHU ZONE DIAGRAM AND ROOM AIRLFOW PLAN**

Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: EJP | Drawn: JLR/MS

Project Number: 581-13-101

Building Number: 1S

Drawing Number: M7.00

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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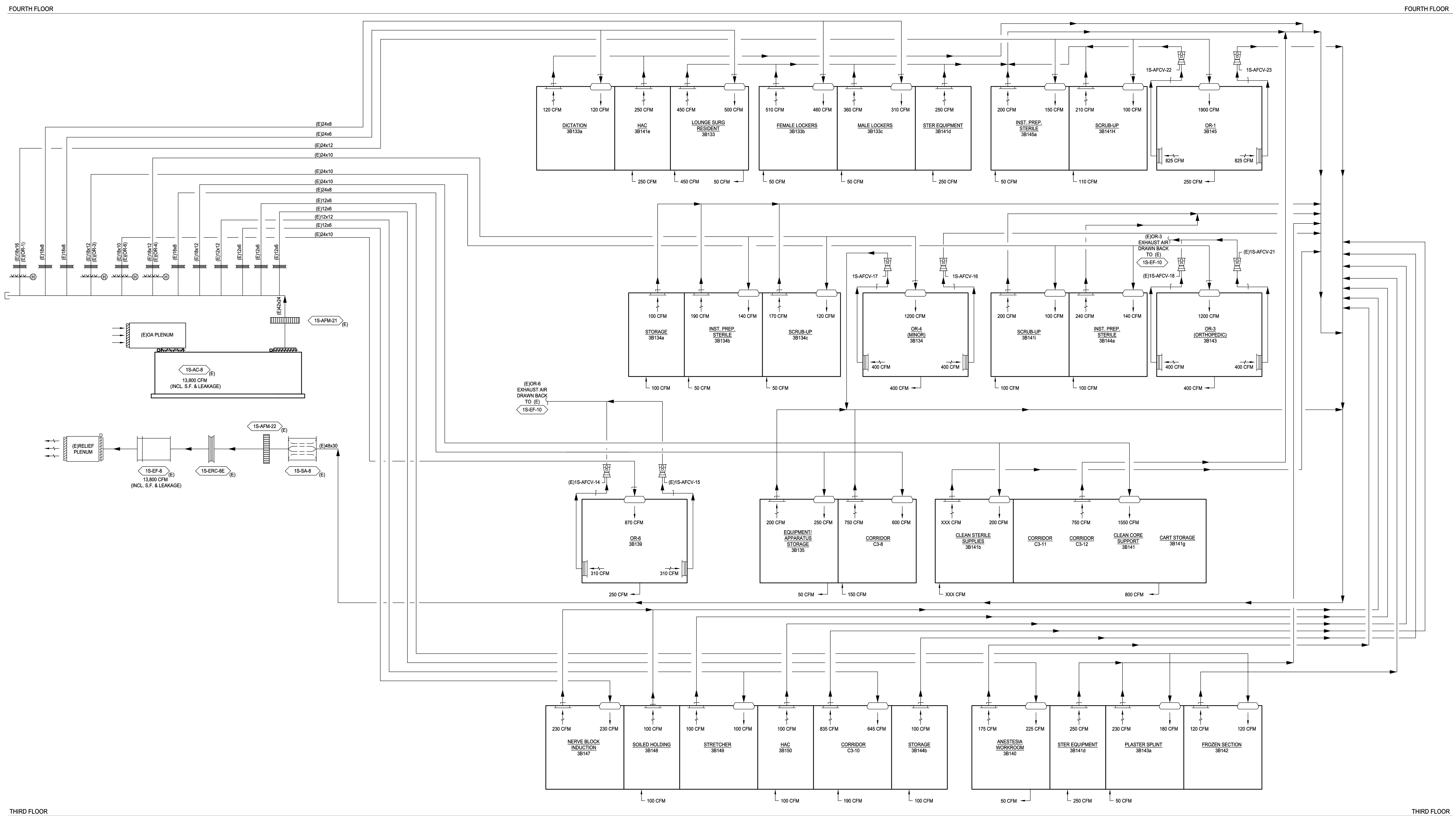
GENERAL NOTES:

1. EXISTING 1S-AC-8 / 1S-EF-8 WILL BE REVISED AND REUSED TO SERVE THE NEW SURGICAL RECOVERY / PACU / ISOLATION ROOM AND CERTAIN SURGICAL SUPPORT AREAS OF THE RENOVATION. DEMOLITION WORK TO OCCUR DURING AND ACROSS PHASES 1B THROUGH 4A. AIRFLOW DIAGRAMS REPRESENT THE BASIC UNDERSTANDING OF EXISTING HVAC SYSTEM AIR DISTRIBUTION AND THE AS-BUILT/RECORD DESIGN DRAWING CAPACITY/AIRFLOW QUANTITIES. SINGLE LINE DIAGRAMS DO NOT INCLUDE ALL SYSTEM DETAILS AND DO NOT REPRESENT EXACT ORDER OR PLACEMENT OF TERMINAL EQUIPMENT WITHIN THE DUCTWORK SYSTEMS. REFER TO DEMOLITION PLANS FOR ADDITIONAL INFORMATION, REQUIREMENTS AND THE EXTENT OF REVISIONS TO BE MADE TO EACH SYSTEM INDICATED.

2. PROVIDE PRE-CONSTRUCTION AND PHASED TESTING AND BALANCING SUPPORT AND REPORTS TO MAINTAIN AND DOCUMENT AIRFLOW RATES TO ALL AREAS (WITHIN AND OUTSIDE OF THE ACTIVE PROJECT PHASE). AIRFLOW RATES AND PRESSURE / TRANSFER AIR OFFSETS MUST BE MAINTAINED. AREAS OF DEMOLITION ARE TO BE SET UP AND MAINTAINED AS NEGATIVE AT ALL TIMES. AREAS ADJACENT TO THE ACTIVE PHASE MUST REMAIN STABLE / IN THEIR AS-FOUND CONDITIONS PRIOR TO ANY CONSTRUCTION/DEMOLITION EFFORTS. COORDINATE EACH PHASE OF WORK WITH THE OWNER AND DESIGN TEAM.



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Drawing Title: **MECHANICAL - EXISTING AC-8 AND EF-8 AIRFLOW DIAGRAM**

Approved: Medical Center Director

Project Title: **RENOVATE SURGICAL SERVICE & UPGRADE OPERATING ROOMS**

Location: HUNTINGTON, WV

Date: 01-15-2016 | Checked: MPP | Drawn: JLR

Project Number: 581-13-101

Building Number: 1S

Drawing Number: M7.01

Office of Construction and Facilities Management

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